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Croonian Lectures

ON

THE NUMERICAL METHOD, AND ITS APPLICATION TO THE SCIENCE AND ART OF MEDICINE.

DELIVERED AT THE ROYAL COLLEGE OF PHYSICIANS, 1860.

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PART II.

The Science of Medicine and the Art of Healing the most difficult of all the Sciences and Arts. Human Beings, the Objects of our Study, differ widely from each other. Causes of that difference in Health and in Disease. Summary of the Causes which render the Science of Medicine and the Art of Healing so difficult and uncertain. These Difficulties and Uncertainties in no way dependent on our Ignorance of the Nature of the Vital Principle. Necessity of Improved Logical Methods. The Numerical Method. Definition. Valuable Properties of Figures, as substituted for Words of Uncertain Meaning. Simple Units, and Units of Variable Magnitude, the ultimate expressions of the combined operation of many forces.

HAVING treated of the leading sciences and scientific arts, and shown that the degree of perfection they have attained is mainly dependent on the extent to which they admit of the application of figures; having made some necessary distinctions between the "relations" and the "properties" of matter, and having also passed in review the sciences and arts of agriculture and of government, as affording some clue to the causes of the difficulties and uncertainties of our own science and art, I now proceed to speak of the science of medicine and the art of healing.

If the science and art of the agriculturist are difficult because the subjects of his study and practice are endowed with life; if the science and art of government are difficult because of the infinite variety of human character, interests, and passions, so (but to a much greater degree) are the science and art of medicine difficult. We too, as scientific and practical physicians, have to do with a living being; but it is with a being of far more complex structure and function than plants or even than other animals; and we, too, have to take account of the effects produced by the same mental and moral causes which perplex the statesman. The object of our study and practice is a compound and complex one. It is a being consisting of a vast assemblage of parts and organs of most curious workmanship, of most delicate mechanism, all working together to one end, life, thought, and action, every part traversed by vessels and nerves, every principal organ acting in harmony and sympathy with every other; the mind affecting the body, the body reacting on the mind; the whole constituting a being as wonderful in its intricacy as is the collective material world which he inhabits; so that he is familiarly and not inaptly termed a *microcosm*, or *little world*.

A closer and more minute examination of this object of our study by no means impairs or weakens the first impression which it makes upon us. The sense of difficulty and perplexity grows as we pass from the individual to the species. If every human being were equally perfect in form and constitution with every other, the study of such a being, in health and in disease, would transcend all other studies in difficulty. But we all know that there are no two human beings in the whole world alike in all respects. Sex and age themselves occasion remarkable differences, with which we must be acquainted, and for which we must make allowance. But even two human beings of the same sex and age may differ, in an extraordinary manner, from each other. They have been born into the world with their own peculiarities of form, and structure, and function, inheriting the physical and mental peculiarities and defects of remote ancestors. And these two beings, of the same sex and age, may not only have been brought into the world with these differences, but before they fall under our observation as suffering from a disease bearing the same name, may have been brought under the most opposite influences, physical and moral. The one shall have been reared in the lap of luxury, the other in poverty and privation; the one shall never have been obliged to make one painful effort for his own support, the other shall have known but one unceasing round of monotonous labour; the one shall have been in the constant enjoyment of pure air, and wholesome nourishment, and invigorating exercises, the other pent up in the close and fetid atmosphere of the most unhealthy city; the one shall have adopted, by wise choice, or through the happy influence of good training and good example, habits of temperance, order, and chastity, the other have fallen, through his own perverseness, or from ignorance, and the want of good education and good example, into the lowest depths of intemperance and profligacy. But in addition to that permanent state of frame which is brought about by the prolonged operation of these causes, we have to take into account, as causing one man to differ from another, those more transient departures from health which are brought about by such causes as fatigue, sleeplessness, want of food, and anxiety of mind.

Thus, then, it happens that the human being whom the physician has to study and to treat is not only a most *complicated* and *compound* object, but one which differs in many important particulars from all his fellows. I need not say that if he thus differs from his fellows before he becomes the subject of disease, he will, when in a state of disease, differ at least as sensibly. His malady, though bearing the same name, will not be exactly the same thing. It will have its own peculiarities of extent, of degree, of duration; will be more or less amenable to treatment, and, if it prove fatal, will leave behind it its own amount of structural change, and its own peculiar morbid combinations.

The same observations that apply to the assemblage of symptoms which constitute a disease, apply equally to any one single symptom. Take as an example that simple and easily observed and described symptom, the pulse. We all know that no two pulses, even of persons of the same sex and age, are exactly the same in number and character; and that all the general rules which have been established in respect of this function are liable to several very curious exceptions.

Again, if we limit our observation to the grand results of disease and of its treatment (I mean death, or recovery, complete or partial) we encounter an almost infinite variety; for while there are some diseases, such as hydrophobia, which have hitherto proved uniformly fatal, and others which always terminate in recovery, there are to be found between these two extremes every possible variety in degree of fatality, and a considerable class of maladies (I mean epidemic and contagious diseases) which have a special rate of mortality at each outbreak, in each locality, and in each portion of their career, from their commencement to their decline.

Another source of difference between one patient and another suffering from the same disease, is their different mental constitution, and different mental states. The one naturally sanguine, the other naturally desponding; the one prone to place confidence in others, the other as prone to distrust; the one free from anxiety for the future, the other harassed by real causes of disquietude, or by fancies equally injurious.

One other source of difficulty and perplexity is too obvious to have escaped your notice. I mean the different degree in

which patients labouring under the same malady observe the rules laid down for their guidance, and submit themselves to their medical attendant; and the widely different amount of care and skill with which they are watched and nursed. The greater or less promptitude with which the patients, or their friends, apply for advice, is another cause of difficulty belonging to the same class. Nor ought I to omit from the list of causes of difficulty almost peculiar to our profession, the variable properties and equally variable degrees of purity and strength of the remedies in use. This remark applies not only to drugs, but to the remedial agency of climate and change of air; for at the time of sending a patient to a particular spot selected as suitable to his case, the characteristics of the climate may be wholly changed by exceptional conditions belonging to the year or season.

I should grow tedious were I to enter more minutely (as I might very easily do) into the causes which make one object of our study and practice (one sick man) to differ from another labouring under a disease bearing the same name. I have said quite enough for the object I had in view, which was to represent the studies and practical duties of the physician, as beyond all comparison the most difficult and perplexing that can engage the attention of a professional man; and, on that very account, as standing in need of the very best aids which it is possible to provide, in the shape of sound logical methods of collecting, arranging, classifying, and analysing facts.

I shall presently enter at some length into these methods, which in the aggregate make up the logic of sciences of observation; but I shall first ask your attention to a short recapitulation of the leading considerations which I have already brought forward.

Assuming as facts, not admitting of dispute, the existing imperfection of the science of medicine, and the difficulty of the art of healing, I trace that imperfection and that difficulty to several causes which I have endeavoured to explain.

In the first place, it is not possible to make to the object of our study and practice—the human body—any direct application of those powerful instruments of calculation which have been constructed, so to speak, by the aid of abstract reasoning, and which do admit of such ready and extensive application to those simple *relations* of matter that form the subjects of study in the sciences of astronomy, optics, and dynamics.

In the second place, we have not that unlimited command over living beings that we have over dead matter. We cannot handle the living body as we can a stone or a metal. We cannot bring to bear upon it the same powerful and subtle forces. So long, at least, as it continues living, we are dealing with a being in perpetual change, the very prime source of that change—the vital principle—being beyond our control, and only subject to be indirectly influenced by us.

In the third place, the object of our art is to bring about important changes in the human body, while the object of other important and comparatively perfect arts, such as the art of navigation, is not to change the state of anything, but simply by observation of the relative position of the heavenly bodies, of the points of the compass, and of conspicuous points of land, to conduct an inanimate mass, by means of adequate external natural forces, or artificial forces still more under control, to a given point on the surface of the globe. So, again, with the arts of construction. The architect and engineer do not attempt to work changes in the intimate composition of the materials which they use; they merely adapt them and fit them to each other, with a view to purposes of utility and ornament. Even the chemist, who *does* aim at bringing about internal changes in the matters with which he deals, has those matters entirely under his control, and can at will bring to bear upon them all the powerful and subtle agencies of which he has learned the properties and uses. On the other hand, in living vegetable bodies, and still more in living animal bodies, there is a force at work without which they would not be alive—a force which, whether it co-operates with our efforts to change their state, or strives against them, so mixes itself up with our efforts, as to render it in the highest degree difficult to determine what is due to the vital principle itself, and what to the agents we bring to bear upon it.

In the fourth place, the words which we use to designate diseases and disordered conditions of the body, are not mere words of *recognition*, like the names given to the planets or stars, but words of *identification*, which can only be safely applied after careful inquiry into the history and existing symptoms of each case; and these, be it recollected, unlike the similar terms of identification in use by botanists, or other cultivators of natural history, are to be learned not by simple inspection and examination by the aid of instruments, but by the descriptions, often very inaccurate, of the patient himself.

In the fifth place, our science is most complicated, and our art rendered most difficult in practice, by the extraordinary differences which exist between one individual and another—differences so great as to make even diseases bearing the same name to present great varieties of character and degree.

And, lastly, the very remedies we use are subject to very considerable variations in purity and strength.

In this short recapitulation there is one source of difficulty arising out of the operations of the vital principle, whatever it be, to which I must briefly revert, that I may guard against any misapprehension of my meaning. I wish it to be very distinctly understood, that I do not attribute any part of our difficulties, as scientific or practical men, to our ignorance of the true nature of the *vital principle*. I deem it very important that we should not fall into this error; for that it is an error, you will at once perceive, when I remind you that no man in his senses presumes to say what the true and intimate nature of any of the great natural forces with which we are acquainted is. Sir Isaac Newton, who proved to us that matter attracts matter, and, having called that attraction *gravitation*, proceeded to calculate the amount of that attraction, and the precise rate of acceleration in falling bodies due to it in given intervals of time, did not presume to say what that principle, or force, of attraction was. He could not help speculating upon it; but he put forward his hypothesis with becoming hesitation and modesty. Nor when he showed that the elliptical motions of the planets were fully explained and accurately traced out, by means of a hypothetical principle of repulsion, causing masses of matter to fly off from each other, acting in conjunction with the attracting force of gravitation, did he pretend to say what the nature of this centrifugal force was. So also with the force which draws the magnet to the pole. So also with the elective affinity which determines all the changes of chemistry. The electrician and the chemist do not pretend to say what those forces really are. In like manner with the theories of light, heat, and electricity: we know nothing whatever of the intimate nature of any of these wonderful agencies. It is true, that by ingeniously devised experiments, and cautious reasoning upon them, we seem to be travelling towards a diminution in the number of recognised forces, as of recognised elements; but the same mystery will assuredly hang over the true natures of the smaller number of forces as now attaches to the larger number. We are profoundly ignorant, therefore, of the true nature of all forces; nor are we one whit nearer to a knowledge of it, though we can develope certain of them at will. We know no more about them than we know of the force of gravitation which we cannot develope, or of the vital force, in respect of which we are almost equally powerless. I say *almost equally powerless*, because, as we all know, it is in our power in many different ways to destroy life, and to impair the vital force.

To all intents and purposes, therefore, we are as ignorant of the true nature of other forces, as we are of the true nature of the vital principle. The difference in our knowledge of the one and the other is, that we *can* make direct and conclusive experiments upon *them;* but we cannot make such experiment upon *it*. We can find out by direct experiment how fast an apple falls to the ground, and what mathematical formula will rightly express the increments of force in equal intervals of time; and which of two or more elementary or compound substances a given element or compound will attract, and further, in what proportion or proportions it will unite with them; but we cannot in any manner measure, and set down in numbers, the intensity of the vital force. This then, and not a greater ignorance, on our part, of the nature of the force with which we have to deal, is the secret of part, at least, of our difficulties and perplexities.

If the science of medicine be so imperfect, and the art of healing so difficult, as I have represented them to be, it is incumbent on us, as scientific and practical men, to use our utmost efforts to render the one more perfect and the other less difficult, by improving to the very utmost all our logical methods, to examine the more important and promising among them with candour and impartiality, to purge our minds from errors and prejudices, and to labour assiduously in the direction which such examination may point out as offering the best chances of success. You will infer, both from the title of these lectures and the remarks which I have incidentally made in the course of this outline of sciences and scientific arts, that I look for the best results from the larger use of figures, and

more particularly from that special use of numbers known as the numerical method. Before I enter upon an examination of this method, I will ask you, from among the facts and general principles which I have sought to establish, specially to bear in mind, as admitting of constant practical application throughout the remainder of this short course, this one—that in the three analogous sciences and arts of agriculture, government, and medicine, the facts and events with which we have to do are brought about by the combined action of a great number of forces and causes. This principle lies at the foundation of that numerical method of which I am to speak in what remains of these lectures.

The numerical method is that branch or division of the universal science of logic which treats of the right way of using the figures which express the ultimate result of the combined operation of such forces or causes. To the sciences which have to do with such ultimate results, summed up in figures, the numerical method bears the same kind of relation that the pure mathematics bear to the mixed mathematical sciences. Wherever the pure mathematics can be brought to bear, they take with them precision of statement, terseness of expression, and compactness and force of inference. So is it with numbers generally in all the sciences, or parts of sciences, to which they are applicable. They express their meaning concisely; they admit of compact and lucid arrangement in tabular forms; and they facilitate the art of reasoning and the work of analysis. It is even possible, as I would have shown you, had time permitted, to make some use of the alphabetical symbols of algebra, as a means of rendering more easy, simple, and effective, the most difficult but most necessary of all our scientific undertakings—the comparison of cases.

The advantages, then, derived from the substitution of numbers for the corresponding words are by no means inconsiderable, and they are strictly analogous to those which arise out of the use of symbols in the pure mathematics. But there is another substitution of numbers for equivalent words which is scarcely less important: I mean, the distinct numerical statement of the number of observations which the physician has made in reference to any question of scientific interest or practical importance, in lieu of those general and indefinite verbal expressions, *often*, *repeatedly*, *generally*, and so forth, by which men often deceive themselves and mislead others as to the real amount and value of their experience; and I trust that I shall not be deemed very uncharitable if I express my belief that some of those who are loudest in their denunciation of what they call *statistics* are fully alive to the inconvenience which the use of numbers entails upon men who, more or less consciously, exaggerate the amount of their experience. And it is, I think, this same class of persons who are most in the habit of objecting to the insufficiency of such numerical statements as do not comprise a very large body of facts. They are apt to misunderstand the real object of such comparatively small collections of facts, and to attribute to the collector the ambition of establishing a numerical law, when his real object was merely to state the precise extent of his information.

To the use of numbers, then, in the cause of science, we are justified in attributing the virtues of terseness of expression, clearness of exposition by tabular forms, and precision and truthfulness in setting forth the amount of our experience. Unhappily, there are too many persons usurping the titles and functions of medical men, who habitually make false statements both of individual cases and of cases in the mass; but to them my remarks do not apply. It would be useless to recommend to them the substitution of numbers for words; but for men who love truth, and wish to promote truthfulness, the substitution of numbers for loose verbal statements is the first step which they should take.

This, however, is *only* the first step towards the attainment of a sound numerical method. Numbers are for it what fibres of silk, cotton, or wool, are for finished fabrics. They are a sort of raw material, requiring careful selection and preparation, and very skilful manipulation, before they can be wrought into a true scientific fabric. Our units must be homogeneous, that our general laws may be sound; and, in submitting the numerical method to a rigorous examination, we must first begin with the units of which our numbers are made up, and then proceed to consider the numbers (whether they be aggregates or averages) which result from our scientific manipulation of the units in question.

Now, the units which compose our figures are not always of the same kind. Sometimes they are simple units, such as a pauper, a criminal, a prisoner, a debtor, a patient; or simple events, such as recovery or death from a given disease; at other times, they are units of variable magnitude, such as the number of the pulse and respiration, the height of the thermometer or barometer, the specific gravity of the urine, the age at death of a particular class of persons, and such like. The social and moral sciences have to do chiefly with the first order of units; the physical sciences with the second. The statist records the number of births, deaths, and marriages; the number of deaths from different diseases; the number of paupers and thieves, of debtors and bankrupts; the number and value of articles of export and import. On the other hand, the astronomer, the mechanician, the chemist, and the meteorologist, are mostly busied in recording the average results of observations and experiments in which each unit is a variable number, consisting itself of equal units of weight or measure marked on the scales of instruments, such as the watch, the barometer and thermometer, the dynamometer, the urinometer, etc.

Though these two kinds of units differ in the manner just stated, though the one kind is simple, and the other compounded of a variable number of equal smaller units, they resemble each other in one very important particular. They are, both of them, the expressions of the simple ultimate results of the simultaneous or successive operation of several causes acting individually with varying force, and collectively in very variable combinations. The price of a commodity is the result of a multitude of operations of commerce, manufacture, and trade; the death of a man at a certain age is equally the result of a series of favourable or unfavourable circumstances operating during the whole of his life on a constitution already predisposed to certain maladies by causes acting even before his birth. Even the mysterious agency to which we give the name of *chance* is, as I shall state more at length bye and bye, merely a combination of forces, of which the elements unite in ever-varying permutations of number and intensity.

Now these facts, whether of the one order or the other, are nothing of themselves. They are valuable only when brought together in masses. They are as the twig to the faggot, the ear to the sheaf, or the soldier to the regiment. It is their number which gives them strength and importance. But why is this? What necessity is there, and how does it arise, for collecting large numbers of such simple facts? The answer is obvious and easy. The facts of this order, simple as they are, either differ from each other in their numerical values, or they differ in the circumstances by which they are brought about. One man's pulse or breathing has not the same frequency as another man's pulse or breathing; the height of the barometer and thermometer is constantly changing; people die at all ages, from birth to decrepitude; criminals, prisoners, debtors, sick men, exist in various proportions to the population in different countries and districts, among different classes, at different ages, and in different seasons; and the same disease has different issues in different patients. These differences, too, are so considerable that several facts of the same order have to be brought together before we can hope to exhaust all their varieties, and before we can strike an average which shall truly represent the state of the case both absolutely and for the purposes of comparison. Hence the necessity of numerous facts, of averages, and of a logical treatise, under the name of the numerical method, on all the modes of dealing with these facts, for all the many purposes to which they are applicable.

The principles and rules of this *numerical method* must be reserved for separate treatment.

[*To be continued.*]

Presentation of Plate to Jolliffe Tufnell, Esq. On April 30th, a deputation of the medical officers of the army waited upon Mr. Tufnell, Regius Professor of Military Surgery, Dublin, for the purpose of presenting him with a testimonial expressive of the sense of their obligations to him for his unwearied and successful exertions to improve the position of the surgeons of the army, consisting of a massive epergne and candelabrum. The plateau represents a series of rocks, the upper surface exhibiting a highly polished surface of mirror silver, and the shaft a palm tree, beneath which is represented a Hindoo woman in dulled silver receiving the fruit of the tree from her child from above. The design is to illustrate the restoration of peace in India. The epergne bears the following inscription:—"Presented to Jolliffe Tufnell, Esq., Regius Professor of Military Surgery, Dublin, by the Medical Officers of the British Army, in acknowledgment of his unwearied advocacy of their rights and staunch support of their claims." Dr. Humfrey, the senior medical officer in Ireland, Inspector-General of Hospitals, presented the testimonial.

A Course of Lectures ON URINE, URINARY DEPOSITS, AND CALCULI.

DELIVERED AT THE PATHOLOGICAL LABORATORY, DURING THE SESSION 1857-58.

BY

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LECTURE V.

URINE IN DISEASE. SOLUBLE SUBSTANCES PRESENT IN URINE IN DISEASE WHICH DO NOT EXIST IN THE HEALTHY SECRETION. ALBUMEN. *Of Detecting the Presence of Albumen; Tests; Nitric Acid; Heat; Anomalous Results in Employing these Tests; Apparent Presence of Albumen in Urine which contains none; Phosphate resembling Albumen; Uric Acid resembling Albumen; Cases. Apparent Absence of Albumen in Urine which contains a large Quantity; Cases. Cause of the Precipitation of Albumen by Heat being prevented by a Trace of Nitric Acid. Other Tests for Albumen. On Estimating the Quantity of Albumen. Peculiar Substance in Urine allied to Albumen. Of the Importance of Albumen in Urine in a Clinical point of view. Dropsy in Disease of the Kidney.* BILE. *Tests. Nitric Acid. Heller's Test. Pettenkofer's Test. Yellow Colour of the Cells, etc., in the Urinary Deposit.* SUGAR. *General Characters of the Urine in Diabetes. Diabetic Sugar. Tests for Diabetic Sugar; Moore's Test: Trommer's Test; Barreswill's and other Solutions. On Testing for Sugar when only Traces are present. Circumstances interfering with the Action of Trommer's Test. Of the Yeast Test. Maumené's or the Perchloride of Tin Test. Bismuth Test. Of Estimating the Quantity of Sugar; volumetrically; by Fermentation; by Dr. Garrod's Method; by the Polarising Saccharimeter. Circumstances under which Sugar is excreted in the Urine. Analyses of Urine in Diabetes.* OTHER SOLUBLE SUBSTANCES WHICH ARE NOT PRESENT IN HEALTH. LEUCINE. TYROSINE. INOSITE. ACETONE. CYSTINE.

[*Continued from page* 317.]

Sugar is not present in healthy urine. Occasionally, however, traces of this substance are met with in the urine of persons who are not suffering from any particular symptoms. It may be excreted for days, or even for a few weeks at a time, in small proportion. It does not follow that all such cases are to pass into confirmed diabetes, but they should be carefully watched by the practitioner. Sometimes, after abstinence from food for some hours, a meal, consisting entirely of starchy matter, will cause sugar to appear in the urine, and if a person, under these circumstances, take a quantity of cane-sugar, a temporary diabetic condition will almost certainly be produced. Instances, in which sugar has been detected in the urine daily for several weeks, and recovery taken place, have occurred. Diabetes may last for many years, but generally it causes death in from one to four years. Although much light has been thrown upon the production of sugar in the animal body of late, no satisfactory explanation of these cases has yet been offered, nor do we know anything of the condition of the system which precedes and ushers in the fatal form of diabetes.

Two kinds of diabetes have been described—*diabetes mellitus* and *diabetes insipidus*. I have already had occasion to allude to the latter, and have mentioned that in this condition large quantities of pale urine, containing little solid matter, and, it need scarcely be repeated, no sugar, are passed, it is therefore quite unnecessary to describe this condition as a distinct disease; the term *diabetes* should never be applied to it. Diabetes is sometimes called *melliturie* or *glucosuria*.

Diabetic urine is usually of a very pale colour, and possesses a peculiar odour, which has been compared to that of violets, apples, new hay, whey, horses' urine, musk, and sour milk. Such comparisons serve only to show how difficult it is to define, in words, a particular odour. No doubt all of you are well acquainted with this peculiar smell, which it is useless to attempt to describe.

Specific Gravity—Reaction. The specific gravity of diabetic urine is very high, almost always above 1030, and it sometimes reaches 1050. In some cases, however, the specific gravity does not differ from the healthy standard. Its reaction is generally acid, and sometimes its surface is covered with a whitish film, owing to the rapid development of the sugar fungus or torula. It has a sweet taste, and often attracts a great number of flies. This last circumstance is sometimes the first thing that directs the patient's attention to his water.

Deposits are not often met with in diabetic urine; those which have come most frequently under my own notice are deposits of the *phosphates*, and deposits of *uric acid*. The fixed salts are generally present in small quantity, and chloride of sodium is often altogether absent. The urea and extractive matters are, as a general rule, relatively much diminished in quantity; but in some cases they exist in considerable proportion. Lehmann states that diabetic urine always contains hippuric acid, but Dr. Garrod fails to confirm his observations. The quantity of urine secreted by patients suffering from this malady is sometimes enormous, and in many cases this is the first point to attract attention to the disease. Some patients have passed as much as twenty pints of urine *per diem*, and P. Frank mentions a case in which the enormous quantity of fifty-two pounds were discharged in twenty-four hours. The proportion of solid matter varies greatly in different cases; it not unfrequently exceeds two pounds, the greater part of which is composed of sugar.

Diabetic sugar is easily obtained from the urine when but little urea and extractive matter are present. If some of the urine of specific gravity 1050, from a bad case, be allowed to evaporate at a temperature of 100°, small warty masses, of a rounded form, soon make their appearance. Under the microscope, these are seen to be composed of very beautiful crystalline plates. When a considerable quantity of the sugar has crystallised, it may be washed with ice-cold water, well pressed between folds of bibulous paper, and dried over sulphuric acid. It is now, in many cases, nearly colourless, and, after two or three crystallisations, from distilled water, it becomes nearly pure. In fig. 6 some beautiful crystals of grape-sugar

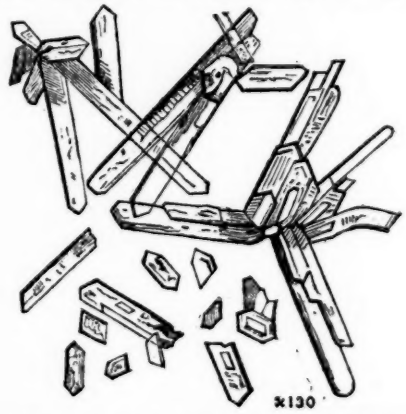

Fig. 6.—Crystals of Diabetic Sugar from Diabetic Uurine containing very little Urea.

are represented. These were obtained by allowing a few drops of diabetic urine, containing a mere trace of urea and salts, to evaporate spontaneously on a glass slide. Similar crystals were obtained from the tears of the patient (case reported by Dr. Gibb, in *Archives of Medicine*, vol. i, page 250). Lately, I have obtained crystals from several specimens of diabetic urine. These crystals are very beautiful objects when examined by polarised light. I am not aware that they have been figured before.

TESTS FOR DIABETIC SUGAR.

The presence of grape sugar in urine is readily ascertained by the application of certain tests, and if moderate care be taken in the examination, the detection of this substance is not open to many fallacies.

Moore's test for grape-sugar consists in adding, to the urine suspected to contain it, about half its bulk of liquor potassæ. If sugar be present, the mixture becomes of a rich brown colour upon boiling, which increases in intensity if the boiling be prolonged. The brown colour of the solution is owing to the formation of mellassic or sacchulmic acid; glucic acid is also produced in the decomposition. This test, however, cannot

be depended upon for detecting the presence of small quantities of sugar, because there are some other substances besides sugar which will cause the development of the colour in a slight degree.

Trommer's test. Of all the tests which have yet been proposed, that originally suggested by Trommer, or some slight modification of it, will be found of the greatest practical value for showing the presence of sugar in diabetic urine, in clinical investigations. Trommer's test is applied as follows:—A small quantity of the urine, placed in a test tube, is to be treated with solution of potash, and a drop or two of a solution of sulphate of copper is to be dropped into the mixture. If sugar be present in any quantity, the precipitate at first formed will be redissolved, and the solution will be of a *dark blue* colour. If only traces of sugar are suspected to be present, one drop of the sulphate of copper solution will be sufficient. The dark blue solution is now to be heated to the boiling point, and if sugar be present, a pale *reddish brown precipitate of suboxide of copper* is immediately thrown down. Instead of boiling the mixture, it may be allowed to stand for some time, when a similar deposit will gradually subside. If the suboxide is only reduced after prolonged boiling, this cannot be taken as good evidence of the presence of sugar, for under these circumstances there are some other substances which will cause the reduction of the oxide of copper. Again, if the solution simply *change colour* by boiling, *without the occurrence of a distinct precipitate*, we must not infer that the change is necessarily due to the presence of sugar, for almost all specimens of urine exhibit this change. A flocculent precipitate of earthy phosphate, which always takes place, cannot be mistaken for the suboxide, as it is quite colourless, or of a pale greenish tinge. The reaction alone characteristic is the production of a brown or yellowish precipitate (varying in quantity according to the amount of sugar the urine contains), either after the mixture has stood for some time, or upon boiling it not longer than for a minute.

Modifications of Trommer's test have been proposed by Barreswil, and others, the most applicable, however, according to Lehmann, being that of Fehling (Lehmann's *Physiological Chemistry*, by Day, vol. i, p. 288. Cavendish Society). As this test is more easily applied than the sulphate of copper and potash, it may be well to mention its composition,—69 grains of sulphate of copper are to be dissolved in 345 grains of distilled water; to this solution a concentrated solution of 268 grains of tartrate of potash, and then a solution composed of 80 grains of carbonate of soda in an ounce of distilled water are to be added; the mixture may be poured into a 1000 grain measure, and filled up with water.

Barreswil's solution is composed of the following constituents:—

Cream of tartar . .	96 grains
Crystallised carbonate of soda .	96 „
Sulphate of copper . .	32 „
Caustic potash . .	64 „
Water . . .	2 fluidounces.

In using these tests, it is only necessary to add about an equal bulk to the urine in a test tube, and then to boil the mixture. If sugar be present, the precipitate of suboxide occurs immediately. The application of this solution to the quantitative determination of sugar, will be considered under *volumetric analysis*. Trommer's, or one of the above mentioned modifications, will be found the most delicate test which can be used, when only small quanties of sugar are suspected to be present, and the tartrate of copper solution is applied as easily as the liquor potassæ test, while the results obtained from it are far more to be depended upon. If albumen be present, the reduction of the oxide of copper does not take place, so that in using the copper test we must ascertain that this substance is absent. Ammonia also dissolves suboxide of copper.

It has been shown that allantoin, creatine, and creatinine, have the power of producing a precipitate of suboxide of copper, like grape-sugar, and more recently, M. Berlin has proved that uric acid possesses to some extent the same property.

Sometime since I endeavoured to ascertain the cause of certain anomalous results, which were sometimes met with in employing this test; and as these to some extent explain the discrepancies of different authorities with reference to the presence or absence of sugar in the urine in certain cases, it is well to allude to them here. The following results were obtained.

1. The precipitate of suboxide of copper was readily dissolved by acetic, hydrochloric, and nitric acids. It was also dissolved by ammonia.

2. The precipitate was insoluble in a solution of chloride of sodium, but was readily dissolved by a weak solution of chloride of ammonium.

3. The addition of a few drops of chloride of ammonium previous to boiling, entirely prevented the precipitation of the suboxide, the mixture retaining its greenish colour. Upon adding some solution of potash, however, the precipitate of suboxide was produced, and ammoniacal fumes were given off at the same time. If a moderate quantity of solution of chloride of ammonium was present, the precipitate did not occur upon the addition of potash, even after very prolonged boiling.

4. If a drop of a very dilute solution of the chloride of ammonium was added to a pretty strong solution of sugar, and, after the addition of the tartrate, the mixture was boiled, no precipitate took place, but the solution became of a pale brown tint; the suboxide being immediately thrown down upon the addition of a few drops of a solution of potash, with the development of ammoniacal fumes. In the above cases in which no precipitate took place, it was ascertained that there was the usual excess of alkali present in the test solution.

5. A solution of oxalate of ammonia also prevented the precipitation of the suboxide, but a greater quantity of this salt than of the chloride of ammonium was required.

6. A neutral solution of urate of ammonia (artificially prepared) also prevented the reduction of the suboxide, and dissolved the precipitate if added to it. On carrying out this experiment further, it was found that the *precipitate of suboxide of copper was dissolved by urine containing an excess of urate of ammonia.*

7. A solution of grape-sugar in water was prepared, and by a preliminary experiment it was ascertained that, upon being boiled with the tartrate test, an abundant precipitation of suboxide took place.

To a portion of the precipitate of suboxide produced in this way, about a drachm of healthy urine, immediately after it was passed, and while yet warm, was added, and the reddish precipitate was instantly dissolved, forming a perfectly clear solution. Upon further boiling, a slight precipitate of phosphate took place. The suboxide, however, could not be precipitated by the further addition of potash and prolonged boiling.

8. Upon mixing a small quantity of grape-sugar with the same specimen of healthy urine, and boiling the mixture with the tartrate test, *no precipitate*, except a little phosphate, was produced. About half an ounce of the same mixture of urine and grape sugar was placed in a test tube, mixed with six drops of yeast, and inverted over mercury. The whole was then placed in a temperature from 70° to 100° for about twelve hours, at the end of which time the tube was found quite filled with gas, and all the liquid was expelled into the vessel in which it had been placed. The specimen of urine with which the above experiments were tried, was allowed to stand in a still place; and when it had become quite cold, an abundant precipitate of urate of ammonia was found to be present.

9. A portion of the aqueous solution of grape-sugar was mixed with a strong solution of urate of ammonia (artificially prepared), and then a certain quantity of the tartrate solution was added, and the mixture boiled. The characteristic precipitate, or opalescence, was not produced, but the mixture became of a pale fawn colour. In a weak solution of urate of ammonia, the characteristic precipitate appeared after boiling the mixture for some minutes. *So that, although much sugar is present, the colour of the mixture may be merely changed to brown, and no precipitate whatever may take place.*

10. A solution of grape-sugar was treated with a drop of a dilute solution of chloride of ammonium, and boiled with the tartrate solution. The mixture became of a brown colour, but no precipitate occurred. Upon the addition of a few drops of solution of potash, the precipitate of suboxide was produced.

A solution of grape-sugar, treated with Trommer's test, according to the usual method, behaved in the same way, in the presence of chloride of ammonium, as when treated with the tartrate of copper solution; but in this case a greater quantity of the chloride was necessary, for when only traces were present, ammoniacal vapours were given off, and the precipitate of suboxide subsided, as before remarked.

From the results of the above experiments, the following conclusions with reference to the practical application of Trom-

mer's test, and Fehling and Barreswil's solutions, and other modifications of the copper test, may be drawn* :—

1. That if the urine contain chloride of ammonium (even in very small quantity), urate of ammonia, or other ammoniacal salts, the suboxide of copper would not be precipitated if only a small quantity of sugar were present.

2. That unless there be a considerable quantity of one of the above salts present (in which case the blue colour will remain), the mixture will change to a brownish hue upon boiling, but no opalescence or *precipitate* of suboxide of copper will occur. When only a moderate amount of sugar is present, I have been unable to obtain a precipitate, under these circumstances, by the addition of potash to the solution, and prolonged boiling. By observation 8, it appears that a specimen of urine exhibiting this reaction may contain a large quantity of sugar, as ascertained by the yeast test.

3. That in many cases in which the precipitation of the suboxide is prevented by the presence of ammoniacal salts, the addition of potash to the solution, and subsequent boiling, will cause the production of a precipitate with the evolution of ammoniacal fumes. Hence care should always be taken that there is a considerable excess of free alkali present.

4. When only small quantities of sugar are present in the urine, and the precipitate of suboxide of copper is not decided, the fermentation test should be resorted to.

Upon treating different specimens of diabetic urine with Trommer's test, or its modifications, it has often been noticed that in one case the precipitate is produced as soon as the mixture reaches the boiling point, or even before; while in other instances it is necessary to keep it in active ebullition for some minutes, before any precipitate is produced. This circumstance receives explanation from the facts above detailed with reference to the presence of ammoniacal salts; and other anomalous results, which must have occurred to many in the habit of employing this test, become explained.

As a test for diabetic or grape-sugar, if proper precautions be observed, much greater dependance can be placed on this test than by simply boiling with liquor potassæ. Specimens of urine in which sugar is suspected to be present, and no decided precipitate of suboxide (which must be carefully distinguished from phosphate †) occurs, should be carefully fermented with yeast before any conclusion is arrived at.

On Testing for Sugar when only Traces are Present. In fluids which are suspected to contain only mere traces of sugar, it is necessary to separate some of the other constituents before applying the test. The plan recommended by M. Leconte is the following:—Excess of acetate of lead is added, and the precipitate separated by filtration. The solution is concentrated by evaporation, treated with ammonia, and again filtered. The copper test is then applied. The objections to applying the reduction test to solutions containing ammonia has been already discussed. It is better to employ carbonate of potash, or soda, instead of ammonia. The excess of lead salt may also be removed from the filtered solution by passing sulphuretted hydrogen. The precipitate of sulphuret of lead is removed by filtration, and the liquid, after evaporation to a small bulk, may be tested.

Another plan recommended by M. Leconte is to treat the urine with acetic acid, and evaporate it to about the fifth of its bulk; it is then treated with alcohol, and after filtration from the salts, etc., the alcoholic solution is evaporated and tested. This plan is free from the objection that ammonia may cause the destruction of the sugar where only traces are present.

The Yeast Test. This is one of the most satisfactory tests for the presence of sugar, and if employed with proper care can hardly fail in its results. Two test tubes, of the same form, and of equal size, are to be taken. One is nearly filled with water, and into the other a corresponding quantity of the urine is to be poured. An equal amount of yeast is now to be added to the liquids in the tubes, and after pouring in just sufficient fluid to fill the tubes, the thumb is to be carefully placed over the opening, and the tube inverted in a small cup of mercury. The best plan, however, is to cut out a little india-rubber pad, slightly larger than the upper extremity of the tube. When the tubes have been filled up to the brim with a little water, the pad is allowed to float on the surface; next a little cup or beaker is inverted, and carefully placed over the end of the tube. The india-rubber being pressed against the open end, the fluid is prevented from escaping. The whole may be inverted, and a little mercury having been poured into the beaker, the india-rubber may be removed, with forceps, without any escape of the fluid. The tubes may be supported in position by a wire stand. Both tubes are then to be exposed, for a few hours, to a temperature of from 80° to 90°, and the comparative size of the bubble of gas in the upper part of each may then be noted. If an appreciable quantity of sugar be present, the bubble of gas in the tube containing the urine will be many times larger than that in the tube which contains the yeast and water. In the latter tube the bubble of gas merely arises from the small quantities of air previously mixed with the yeast, becoming disengaged, and floating to the surface. Fermentation, when carefully performed, is positive evidence of the presence of sugar, although it does not indicate the kind of sugar present.

Maumené's Test. A little woollen rag, as merino, is cut into strips, and soaked for four or five minutes in a solution of perchloride of tin (one part of the perchloride to two parts of water). The slips are then dried over the water bath. A drop of the urine suspected to contain sugar is allowed to fall on a small slip of the prepared merino, which is then dried, and exposed to the dull red heat of a spirit lamp. If a trace of sugar be present, a black spot is produced.

Bismuth Test. Bottger has lately proposed a new test for sugar. This consists in adding first of all potash, then a small quantity of subnitrate of bismuth; lastly, the mixture is boiled. If sugar is present, the oxide is reduced to metallic bismuth, which is precipitated in the form of a black powder. It has been asserted that sulphuret of bismuth is formed, but this seems not to be the case. Brücke shows that this test is more delicate than Trommer's (or the modification of it by Fehling); and he finds that the black precipitate is produced to some extent in specimens of healthy urine. The bismuth test may be also applied thus. A solution of carbonate of soda (crystallised carbonate 1 part, water 3 parts) is prepared, and a certain quantity added to an equal amount of the urine. A little basic nitrate of bismuth is then added, and the mixture heated to the boiling point. If sugar be present, a black precipitate is produced.

[*To be continued.*]

* Professor Brücke has recently drawn attention to the action of ammonia in preventing the precipitation of the suboxide of copper, and other points connected with this subject. Probably he had not seen the results just given, which were obtained in 1852. (Med.-Chir. Review, Jan. 1853, vol. xi, p. 113.)

† The precipitate of suboxide may be distinguished from phosphate by its solubility in ammonia.

Original Communications.

A CASE OF SUDDEN DEATH, WITHOUT ANY ADEQUATE POST MORTEM APPEARANCES.

By J. ZACHARIAH LAURENCE, F.R.C.S., M.B.Lond., Surgeon to the South London Ophthalmic Hospital, and the Hospital for Paralysis.

[*Communicated to the Harveian Society, May 3rd*, 1860.]

ON the 24th of April, the housemaid in a medical man's family was sent out to fetch the beer, when, within ten minutes afterwards, she was found by the cook lying apparently dead in the scullery. I saw her myself in about another quarter of an hour. There was no action of the heart, no breathing, no sensibility; the body was still warm; the face livid and swollen. The only symptoms observed during life were that, for about a week before her death, she suffered from earache, appeared unusually indolent and stupid, and at times complained of faintness.

POST MORTEM EXAMINATION, about twenty-two hours after death. The body was large, finely developed, very fat. Cadaveric rigidity was strongly marked in the limbs, and the firmly clenched lower jaw. The left ventricle of the heart was filled with dark fluid blood, and was firmly contracted; the right was flaccid and collapsed, containing but a very small clot. The muscular substance was apparently normal. The heart was altogether small in proportion to the body. The lungs were slightly congested. Between the two openings of the stomach was an oblong patch of fine punctiform florid injection in the lines of the rugæ. It contained an undigested meal of some stewed steak, of which the patient had partaken shortly before death. No poison of any kind was found in a careful analysis instituted by Mr. Rodgers, at the request of the jury. The intestines were not opened; their peritoneal coat was covered with congested veins, but in no very marked degree. The

liver was somewhat congested. The spleen was soft and congested. The kidneys were very much congested. The uterus, ovaries, and Fallopian tubes, were much congested. (She was menstruating at the time of her death.) The superficial veins of the brain, as those of the medulla oblongata, were turgid with dark blood. There was a slight amount of serum beneath the arachnoid (which was somewhat opaque here and there), especially in the basilar fossa. The brain-substance itself was perfectly normal. The larynx, trachea, and œsophagus were healthy, and contained no traces of any food in them.

REMARKS. This case is interesting in medical jurisprudence, in two points of view: first, for the unusual precision with which the entire suddenness of the death could be fixed; second, for the total absence of any *post mortem* appearances usually found in cases of sudden death (such as heart-disease, bursting of aneurisms, etc.). In the *Annales d'Hygiène Publique* for 1838 will be found a paper by Devergie entitled "De la Mort Subite", in which, with other causes of sudden death, he signalises that by syncope, which he had found to occur three times in forty cases. Dr. Tourdès reported to the scientific congress meeting held at Strasbourg in 1842, that he had met with this cause of sudden death once in twenty-six cases. It appears to be identical with the "idiopathic asphyxia" of Chevalier. Devergie, in the paper above referred to, gives the following as the *post mortem* appearances he found in his three cases of death from syncope. "1. The absence of all congestion of the organs. 2. The normal state of all the organs. 3. The existence of about an equal quantity of blood in the right and left cavities of the heart, regard being had to their respective sizes. 4. Perhaps the coagulation of the blood in the fibrinous state." As another cause of sudden death, Devergie further indicates that arising from cerebral congestion, which may, he says, be limited to the meninges. In illustration of this, he relates the case of a man aged 63, who, having only complained of a slight headache in the morning, took a good breakfast, after which he slept for two hours, and, on awaking, suddenly died. No congestion of the brain-substance was found; there was an old apoplectic clot in the left corpus striatum; there was great congestion of the meninges of the brain and spinal cord.

Directing attention now to the condition of the stomach in our case, we may naturally ask ourselves whether the undigested meal, or the patch of injection on its coats, may have had anything to do with the cause of death? As regards the latter, no one would, I think, after the researches of Dr. Yellowly and others, attach any great independent value to mere vascularity of the gastric mucous membrane. The undigested meal may perhaps possess rather more significance. The deceased seems to have been in the habit of "bolting" her meals very rapidly. The stewed steak found in her stomach, I am informed, she partook of stealthily—and therefore probably hastily—before her proper dinner, shortly before death.

Dr. Taylor, at p. 152 of the second edition of his work on *Poisons*, has cited several instances of persons dying quite suddenly, with nothing to account for death but a distension of the stomach; but I noticed no such distension in the present case. We may not unreasonably connect these conditions of the stomach with the syncopal affection. Professor Weber has shown that irritation of the pneumogastrics will stop the heart's action; and my distinguished friend and colleague, Dr. Brown-Séquard, has further shown that crushing the semilunar ganglia has a similar effect on the heart, provided the great splanchnic and pneumogastric nerves remain intact.

I should feel disposed to regard the present case as one of a mixed nature, presenting some of the signs of syncopal asphyxia, others of apoplexy. Explain it, however, as we may, it still remains one of considerable interest, proving as it does that, under certain (as yet very imperfectly understood) circumstances, death may occur suddenly, without leaving any traces at all adequate (in our present state of knowledge) to account for the fatal result.

CONNECTION BETWEEN CANCER AND FRAGILITAS OSSIUM.

By W. MCCHEANE, Esq., Liverpool.

THE following case may perhaps be worth recording, as illustrative of the connection between cancer and fragilitas ossium.

R. W., a female, aged 68, had been under my care for some time for a scirrhous tumour in the right breast, from which situation a similar tumour was formerly removed. Of late, she had been altogether confined to bed with gnawing pains in the limbs, but more especially in the lower extremities, and in a state of general cachexia.

On the 1st instant, during a fit of coughing, she felt a something give way in the region of the right hip, which sensation was immediately followed by severe pain in the part and down the whole limb. On examination, I found a fracture of the neck of the thigh-bone, which injury she survived only a week.

Some months ago she fractured two ribs with lifting a pan off the fire; the bones, however, readily united.

Transactions of Branches.

BIRMINGHAM AND MIDLAND COUNTIES BRANCH.

ON THE PATHOLOGY OF LEAD-COLIC.

By WILLOUGHBY F. WADE, M.B., Physician to the Queen's Hospital and to the General Dispensary; Professor of the Practice of Physic in the Queen's College, Birmingham.

[*Read April 19th*, 1860.]

THE received opinion that this painful disorder depends upon some perverted action of the colon, as its name implies, has already had its antagonists. When we come to inquire a little more closely what this perverted action is, we find that no satisfactory answer can be given. Some contend for an empty and contracted condition of the gut, others for a distension by gas or fæces.

Dr. Copland says that in his cases distension was as frequent as retraction, owing evidently to inflation and fæcal engorgement of the colon, the course of which could be distinctly traced under the abdominal parietes. De Haen and Merat found contraction of the colon and cæcum in all the cases they examined. But, as Dr. Watson judiciously remarks, "with regard to the contraction of the large intestine in these cases, we must not be too ready to attribute it to spasm, for the bowel, when empty, is apt to be contracted." Andral details six cases in which no such contractions were found. Indeed Andral, Louis, and Sir George Baker, concur in describing the intestines as being normal throughout their whole extent. I doubt very much whether an unopposed contraction of a hollow muscular canal can be attended with pain. It is the vain endeavour to shorten the muscular tissue, and the resistance offered by an incompressible material, that causes the pain in biliary calculus and ordinary crapulous or flatulent colic. An empty intestine might, I think, go on contracting till its calibre was obliterated before it produced pain. The after-pains of labour do not offer any necessary objection to this view; for the contraction of one layer of fibres can be well resisted by the large mass of inactive ones. Besides, they often depend on the presence of clots. On the other hand, did the pain of lead-colic depend upon the presence of flatus, I cannot conceive how it is that this should not, in such cases, be readily removed, for a time at least, by opiates and carminatives, as happens in ordinary flatulence. If, again, it depended upon retained fæces, the removal of them should remove the pain. But the operation of the bowels is by no means necessarily followed by this relief. It is, indeed, true that the two often coincide, but this is quite as easily explicable in another way, as we shall see directly. The retraction of the abdominal parietes, so constantly noticed in this form of the complaint, is by no means so constantly observed in other varieties of colic.

The pathology of lead-colic is then, I submit, unsatisfactory and vague as at present taught.

Various pathologists of distinction have been disposed to refer the symptoms to cramp of the external abdominal muscles, instead of to the intestines at all. Giacomini first broached this notion, and M. Briquet of La Charité has more lately revived this view, which he supports with skill and vigour. The existence of cramp in these muscles has been recognised by those who are entirely committed to the generally accepted pathology. Thus Dr. Copland says, "the voluntary muscles often become so sore that they cannot bear the slightest pressure; and the pain frequently alternates between the stomach and bowels and the external muscles." Besides

the spasmodic contraction of the abdominal muscles, which he has observed more particularly in the severe cases, Grisolle says that three-fourths of these patients suffer from cramps, or a feeling of numbness, or from lancinating and tearing pains in the muscles of the lower extremities; half of them have similar affections of the muscles of the upper extremities, and a third in the lumbar muscles.

The fact that in the most severe cases the abdomen was found to be retracted is important; for there was evidently a spasm of all the abdominal muscles. Hence, on Briquet's theory, the acuteness of the pain; whereas in the slighter cases there would be only a moderate spasm or perhaps affection of one or two muscles only, which would not produce retraction, and which might be readily overlooked unless attention were specially directed to it.

There can be no question that this condition is more than sufficient to produce any amount of pain—even the excruciating agony of lead-colic. To any one who has suffered from cramp in the leg or any other part of the body, further proof of this point is quite superfluous. That it is the actual cause of the suffering M. Briquet shows by the following arguments:—

Muscles which are thus affected may be excited to more energetic action by rubbing them with the point of the finger or with any rigid, bluntly pointed instrument, such, for example, as a penholder. They can also be reexcited if they have previously become quiescent. We can thus reproduce or exacerbate the pains of lead-colic, and this artificial excitement cannot be distinguished by the patient from the natural exacerbations so common in this complaint.

Some little time ago I had an opportunity of proving the truth of M. Briquet's assertions.

A boy, aged 13, who was engaged in polishing black glass brooches with a powder containing lead, and whose gums were marked with the blue line, was brought in great suffering to the Dispensary, in October 1858. The pain was constant, with paroxysmal exacerbations; it was referred to the upper part of the abdomen; the bowels had been open two days before, but for a week had been very costive. The pain also was of a week's duration. The upper half of each rectus abdominis was tonically contracted, and the spasm evidently increased during each exacerbation. The spasm might be artificially excited by manipulation with the finger, as described by Briquet. This produced just as much pain as occurred during the inartificial exacerbations, and this pain was just of the same character as that which came on spontaneously. In this case the bowels were moved, not before, but after the pain had ceased. In another less severe case, in a girl, the pain ceased twenty-four hours *before* the bowels were opened.

There can be, I think, no difficulty in understanding that the pains of lead-colic, and the retraction of the abdomen, may be completely explained by the existence of tonic and clonic spasm of the abdominal muscular parietes. The question then which remains to be answered is, whether it is possible for the constipation to depend upon this spasm. It appears to me that this question may be safely answered in the affirmative.

In ordinary defecation these muscles take an active part. "The act of defecation (as of urination)," says Dr. Carpenter, "chiefly depends upon the combined contraction of the abdominal muscles, similar to that which is concerned in the expiratory movement; but the glottis being closed, so as to prevent the upward motion of the diaphragm, their force acts only on the contents of the abdominal cavity; and so long as the sphincter of the cardia remains closed, it must press downwards upon the walls of the rectum and bladder, the contents of the one or the other of these cavities, or of both, being expelled according to the condition of their respective sphincters; these actions being doubtless assisted by the contraction of the walls of the rectum and bladder themselves."

The muscles, then, of the abdomen being already firmly contracted without closure of the glottis, the diaphragm is unable to descend, and pressure upon the rectum becomes impossible. This, combined with the hardened state of the fæces and the contraction of the sphincter ani, both of which are, according to the best authorities, *common* occurrences in lead colic, are undoubtedly sufficient to explain the constipation which characterises this disorder. The bladder requiring a less sustained voluntary effect, is emptied; this applies also to the stomach. This theory explains also why micturition is sometimes painful; and the connections of the cremaster account for its spasmodic contraction, and the consequent painful retraction of the testis. And we can also comprehend why the action of the bowels, and cessation of the pain, should be so commonly contemporaneous, and why, as in the cases I have cited, the pain should cease before the bowels are moved.

It now remains to consider in what relation the lead-poisoning stands to this spasm; and what relation there is between this latter and the disorder of the abdominal organs, which is certainly a common feature of the complaint, such as the slight icterus, the hardened fæces, the vomiting, loss of appetite, and so on.

I presume that the members of this Association are acquainted with the papers which have been published from time to time in our JOURNAL, by our ingenious *confrère* Dr. Inman of Liverpool. In these and in a volume which he has published separately, Dr. Inman has contended that the symptoms which have been grouped together under the title of "Spinal Irritation" arise from the irregular contraction of muscles which have been enfeebled from any cause; as, for instance, from overexertion, or malnutrition. He points out, too, that the term overexertion is a relative one; that whereas one person might walk fifty miles or lift enormous weights, others might evidently be overtasked did they accomplish a tenth part of such labours. Muscles so affected present, generally perhaps in a minor degree, those appearances and phenomena which are found in the abdominal muscles of patients with lead colic.

Now, we know, from examination, that muscles impregnated with lead lose their colour, and become enfeebled in various degrees, even to the extent of actual paralysis. The malnutrition, if extreme, ends in fatty degeneration so complete that all the proper functions of the muscle are rendered impossible. It is especially, if not exclusively, the voluntary muscles upon which lead exerts its morbid influence. I cannot assert that the abdominal muscles are impregnated with lead in these cases, because sufficient time has not elapsed since attention has been directed to this view to permit of the necessary investigations being completed. But if this be made an objection, I answer that it applies equally to the intestinal involuntary muscles, which have not been shown to suffer disorganisation, but which, on the contrary, have been stated by independent observers to be apparently healthy. Besides, the frequency with which spasm does attack the external musles has been admitted by the same observers.

Whether the absorption or ingestion of lead produces any direct effect upon the abdominal viscera, I am also unable to state; if not, we must attribute their disorder to general causes, such, for instance, as intemperance in men, a vice to which painters are much addicted, and which we have the authority of Dr. Copland for stating aggravates and reproduces the effects of lead on the system. Induration of the fæces has a direct influence upon the production of parietal spasm, by necessitating unwonted activity of the muscles during the act of defæcation. The occupation of many of these people involves considerable exertion.

In a case of so-called spinal irritation, with costiveness, in a young girl, not a lead-worker, the act of defæcation was always attended with pain in the abdominal muscles, and a subsequent soreness in the upper portions of the recti abdominis. This ceased in a great degree when the bowels were rendered more soluble by medicine, and this long before there was any or much amelioration of the other muscles which were liable to these painful contractions.

Congestion of the liver, irritability of the stomach, and irritation of the colon, from scybala, may tend in another way to produce this spasmodic affection. It is not uncommon to find the muscles contracted where they overlie an internal organ which is in an abnormal state; indeed, Dr. Copland explains this contraction by supposing that it is involuntarily instituted for the purpose of compressing the distended colon.

In conclusion, let me ask, why should we seek to offer an explanation of lead-colic which cannot be substantiated, when we can find another one which is not only supported by admitted facts, but which is capable of adequately explaining not merely the colicky pain and the constipation, but also of embracing those, as they have been held, minor and accidental features, the existence of which must, on the old theory, have been explained in the very way which I now seek to extend, so as to embrace and harmonise all the phenomena of the disorder. Whether lead-colic, using the term in its strict acceptation, ever exists is, I think, extremely doubtful; but that many cases reputed to be such are to be referred to a totally different category rests upon evidence which cannot, I think, be controverted. It therefore behoves those who are prepared to admit, as I think all must, the occasional simulation of lead-colic (in

the strict sense) by a spasm of the external muscles; it behoves them, I say, to distinguish carefully in each case its exact nature, both with the view of ascertaining the real pathology of these two disorders, and of regulating their treatment by this, and not merely by the name, under which they have been hitherto confounded.

LETTERS AND COMMUNICATIONS.

Letters or communications for the JOURNAL should be addressed to Dr. WYNTER, Coleherne Court, Old Brompton, S.W.

Letters regarding the business department of the JOURNAL, and corrected proofs, should be sent to 37, Great Queen Street, Lincoln's Inn Fields, W.C.

British Medical Journal.

SATURDAY, MAY 19TH, 1860.

SIR BENJAMIN BRODIE'S APOLOGY FOR THE COUNCIL OF THE COLLEGE OF SURGEONS.

SIR BENJAMIN BRODIE has undertaken to vindicate the ways of the Council of the College of Surgeons to its indignant members. The letter from the President of the Medical Council (published in our last number), in answer to the complaints made to him of the admission of certain persons as members of the College of Surgeons, who have not gone through the course of medical study required of ordinary candidates, will, we think, be read with no small surprise and regret by our readers. As Sir Benjamin is still a member of the Council of the College, we are bound to consider that he speaks with their voice, and that at length we have a reply to the remonstrances which have been hurled against them from every part of the country. If Sir Benjamin's reply is their case, we are bound to say that it will not bear one moment's investigation; and that, elevated as their spokesman is, they will not have taken much by their motion. The whole pith of his argument is contained in the following extracts:—

"When the Apothecaries Act of 1815 was passed, it was thought right that the operation of it should be in no way retrospective, and it was therefore provided that all those who had been engaged in practice as apothecaries previously to the year 1815 should have the same privileges as those who were to be licensed after due examination afterwards. In the Medical Act, the same attention has not been paid to the preservation of vested interests as in the instance of the Apothecaries' Act. Previously to the year 1858, it was not necessary that any one who practised as a surgeon, or called himself a 'surgeon', should be provided with a licence or diploma from any of the medical corporations. He had as much right to do so, and to place the title of 'surgeon' on his door, as another man has to call himself a painter or an engineer. . . . . If the College of Surgeons has done no more than to admit such persons as members after examination, without inquiring very minutely into their early professional studies, I conceive that they have not acted contrary to the spirit of the Medical Act, nor to the intentions of those by whom it was framed."

The Council of the College—for we must consider that the President of the Medical Council speaks in their name—justify themselves by the Apothecaries' Act, and go back as far as 1815 for that purpose. As the Council have been mainly occupied in looking back of late, we are not surprised that they do so on the present occasion. But there is one flaw in their argument, which the reader will undoubtedly perceive.

Up to the passing of the Act of 1815, there was no examining body in existence to test the acquirements of the apothecary; therefore, if the Act had been made retrospective, a vast majority of the existing practitioners would have been reduced to beggary by no fault or lapse whatever of their own. What parity is there between their case and that of the gentlemen who have lately been surreptitiously admitted by the Council? The College doors have been wide open for years; and it was the duty of every man who came before the world as a surgeon to have earned his diploma according to the usual regulations. Common honesty would point out this path to him; and if he neglected to follow it, he should suffer by his own default. The Act of 1858 very justly refused to preserve the "vested interests" of wilful ignorance; but the Council of the College have been by no means so squeamish, and have, against the whole spirit of the new Act, adulterated their members by the admixture of half-educated persons, or, for all we know, persons with no education at all. The number of medical botanists, Coffinites, and others, who have thus obtained the same professional status as gentlemen who have undergone the prescribed curriculum, must be considerable; and regular practitioners, who fondly anticipated that the medical legislation of 1858 would result in a complete suppression of illegal practitioners, have found their anticipations oddly realised by the action of the College in thus, without any questions asked, quietly legalising them! Sir Benjamin Brodie has done his best for the Council in their great difficulty; but even his respected name will not give weight to arguments so glaringly unsound as those put forward in his letter.

THE REPRESENTATIVE OF THE UNIVERSITY OF LONDON.

EVERY moment is adding to the interest of the coming contest for the proposed seat for the University of London. In addition to the names of Sir John Romilly and Sir Charles Locock, that of Dr. Foster (LL.D.) has been brought prominently forward. The constituency of the University is about nine hundred, and it is believed that each candidate has secured the promise of two hundred and fifty votes or thereabouts. As Sir John Romilly made it a condition of his contesting the seat, that a majority of promises should be insured to him, we trust that the evenly divided state of the canvass will lead to his withdrawal from the candidature, in which case Sir Charles Locock would probably be returned.

But, to secure this result, it is the duty of every medical man to use his utmost endeavours to forward the interests of his professional brethren. That Sir Charles Locock is fully alive to the very important nature of the trust he desires to fill, the following concluding words of his address sufficiently evince.

"As there are many questions of public importance in which a medical man may be of great service in Parliament, both in protecting the interests of his own profession and in assisting in legislating for the health of the community at large, I feel less difficulty in coming forward on the present occasion, from having been for so many years an active member of that profession, and having now full leisure to devote to other matters."

We are told that law is represented in the House of Commons by at least a hundred lawyers. Railways command the voice of between fifty and sixty members. Horse-Guards interests are protected by a still larger number; and even the publican's cause is pleaded by a select and powerful band of members. But medicine has only one or two representatives, whose voices are seldom heard. Whilst the different interests are scrambling for their own material advantage, measures of the greatest advantage to the cause of humanity seek an advocate, and sanitary science is looked upon as little better than a new-fangled imposture. The presence of such a man as Sir Charles Locock in the House would be of incalculable benefit to our own semi-disorganised profession, and would, in all probability, lead to a still closer union of medicine with the state.

THE WEEK.

In the Journal for February 4, we noticed a general order which had been issued by Lord Clyde, implying an animadversion on the medical officers of the Indian army for not taking care that a proper supply of quinine was provided for the use of the men. It was incredible to us, that such a reprimand should be unfounded; but it was impossible to determine with whom the blame really lay. The *Indian Lancet* of April 1, however, puts the matter in an entirely new light, by showing that the foundation for the order was of the slightest possible kind. Quoting from the *Delhi Gazette*, the *Indian Lancet* states that:—

"In the beginning of December the Right Honourable the Commander in Chief arrived at ———, and after inspecting the troops his lordship visited the hospitals. During the visit not an allusion was made in any one of the hospitals to the supply of quinine, so that his lordship knew not whether the supply was defective or abundant. From inquiries made since, however, we are in a position to state that all were amply supplied—in the hospital of the battery of artillery, there were fifteen ounces, in the cavalry regiment, one pound, and in the infantry regiment upwards of three pounds, which most medical men would consider a sufficient supply, particularly as in two hours any amount could have been obtained from the medical depôt in camp, which contained about twenty-four pounds. We may add that when by directions of his excellency a further supply was forwarded in hot haste by the superintending surgeon at Agra, to these hospitals, the medical officers in charge were puzzled what to do with it, and positively objected to attach their names to any letter or paper purporting to show that they were in any need of it or required the supply 'emergently'. So much for one of the two stations visited by his excellency.

"His lordship then proceeded to ———, where fevers had been very prevalent, and a question was asked about the supply of quinine, of which about four ounces only was in hand; but though, from the unusual sickness, the consumption had been almost unprecedented, the regimental hospital had never been 'devoid of quinine', even for a day. The detachment of artillery was less fortunate. That hospital was devoid of quinine, and had been so for *seven* days; and how did this happen? Simply thus:—A drunken apothecary, since dismissed the service for some other offence, had misdirected an application for more quinine, and by this mistake the expected supply never arrived. Fortunately the sickness had by this time much abated, and the want was consequently less felt, though under any circumstances such an accident must be deplored."

A general hospital, intended for the reception of fifty-one patients, but at present fitted for thirty-one, has recently been opened in Sheffield. From the description given in a paper published in the town, it appears that the arrangements are very complete. The wards are isolated from each other; and 1150 cubic feet of air are allotted to each patient. The establishment of the hospital, and the carrying out of its organisation, are, we learn, due to the energetic labours of our associate, Dr. John C. Hall, who has thus earned for himself the gratitude of his fellow townsmen. The medical officers of the hospital are, Drs. Shearman, Hunter, and Keeling, and Messrs. J. F. Wright and S. Parker.

A paragraph in our news columns records the re-opening of the medical department of Queen's College, Birmingham, which, in consequence of pecuniary difficulties, it had been resolved to close. The reason assigned by Mr. Sands Cox for the reversal of the resolutions of the Council is, that, in consequence of the remonstrances of the friends of several students who had paid their fees, a legal injunction had been obtained to prevent the closing of the Institution. In consequence, the summer lectures have been commenced; and it is satisfactory to learn, from the statement of Mr. Cox, that means are being taken for the liquidation of the debt of the College. We trust that now the course of this valuable institution will go on smoothly, and that its founder may yet see it flourishing both in name and in strength among the provincial schools of the kingdom.

ADMISSION OF MEMBERS, AND PAYMENT OF SUBSCRIPTIONS.

The following are the Laws of the Association regarding the Admission of Members, and the Payment of their Subscriptions.

"*Admission of Members.* Any qualified medical practitioner, not disqualified by any bye-law, who shall be recommended as eligible by any *three* members, shall be admitted a member at any time by the Committee of Council, or by the Council of any Branch."

"*Subscriptions.* The subscription to the Association shall be One Guinea annually; and each member, on paying his subscription, shall be entitled to receive the publications of the Association for the current year. The subscription shall date from the 1st January in each year, and shall be considered as due unless notice of withdrawal be given in writing to the Secretary on or before the 25th of December previous.

"If any member's subscription remain unpaid twelve months after it shall have become due, the publications of the Society shall be withheld from such member until his arrears be paid.

"The name of no member shall remain on the books of the Association, whose arrears extend over three years; but the omission of the name from the list of members shall not be deemed, either in honour or equity, to relieve any member from his liability for the subscriptions due for the period during which he has availed himself of the privileges of membership."

Either of the following modes of payment may be adopted:—

1. Payment by Post-Office Order to the Treasurer (Sir C. Hastings, M.D., Worcester), or to the undersigned.

2. Payment to the Secretary of the Branch to which the member belongs.

3. Members can also make their payments through the publisher of the British Medical Journal, Mr. Thomas John Honeyman, 37, Great Queen Street, Lincoln's Inn Fields, W.C., by post-office order, payable at the Western Central Distric Office, High Holborn.

Philip H. Williams, M.D., *General Secretary*

Worcester, May 1860.

Association Intelligence.

THIRD LIST OF MEMBERS

WHO HAVE PAID THEIR SUBSCRIPTIONS FOR 1860.

The following names were received too late for insertion in last week's list.

BEDFORDSHIRE.
Appleton, J. G., Esq., Luton
Chapman, T., Esq., Ampthill
Raynes, H., Esq., Potton
Slinn, W. S., Esq., Ampthill
Stevens, R., Esq., Markyate Street
Williams, J. F., Esq., Cranfield
Williamson, J., Esq., Wootton
Woakes, E., jun., Esq., Luton

BUCKINGHAMSHIRE.
Daniell, W. C., Esq., Stony Stratford
Hailey, H., Esq., Newport Pagnell
Marsack, B., Esq., Olney

LEICESTERSHIRE.
Bangham, F., Esq., Ashby-de-la-Zouch

NORTHAMPTONSHIRE.
Fernie, A., Esq., Wellingborough

WARWICKSHIRE.
Elkington, G., Esq., Birmingham
Heslop, T. P., M.D., Birmingham
Nason, E., Esq., Nuneaton
Solomon, J. V., Esq., Birmingham
Spratly, S., Esq., Birmingham
Williams, T. W., Esq., Birmingham

WORCESTERSHIRE.
Johnson, W. E., Esq., Dudley

BRANCH MEETINGS TO BE HELD.

NAME OF BRANCH.	PLACE OF MEETING.	DATE.
East York and North Lincoln. [Annual Meeting.]	Infirmary, Hull.	Thursday, May 24th, 1½ P.M.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

Monday, May 7th, 1860.

A. B. Garrod, M.D., F.R.S., President, in the Chair.

CLINICAL DISCUSSION.

Disease of the Nails. Dr. Richardson brought forward coloured drawings, taken that day from a patient, showing a peculiar disease of the nails. The nail first assumed a dirty appearance, as if it had been coated with varnish; then it commenced to crumble down about the edges, and to be covered over its whole surface with fine pits or indentations. After a time there was great thickening beneath the nail, and a wasting from the free margin in an irregular way, almost as though the nail were being bitten down by the teeth of a small animal. The disease was peculiarly disagreeable to those who suffered from it. Dr. Richardson had met with three instances of this nature, and had watched them carefully, but was not as yet certain of their nature. The condition producing the disease was clearly constitutional in character, and indeed was little affected by local agents: this was shown by the circumstance that, in one of his cases, the nails of the toes as well as those of the hands were affected. Was the disease of syphilitic origin? In the first case seen by the author, the patient admitted that some years before he had suffered from syphilis; but he had recovered, and there was no remaining indication of the malady, except the affection of the nails could be considered as such. In the second case, Dr. Richardson was not able to obtain reliable information on the question of syphilis; and in the third case, from which the drawings were taken, the hypothesis of syphilis was without any ground in fact. In this last named case the patient was a female, of the middle period of life, and in her the nail-disorder had followed upon an attack of lepra. Three years since the lepra first appeared, and had been very extensive. In August 1859, she was first conscious of some peculiarity of the nails. Beneath the nails there was a frequent tingling sensation, like that experienced by striking the ulnar nerve at the elbows. This was followed by a sensation of warmth and fulness, then by the dirty appearance of the nail and the other local changes already described. Every nail had been attacked but one; the exception was the nail of the forefinger of the right hand. Corresponding with the disease of the nails, the hair had fallen off considerably. Dr. Richardson drew attention to the question of treatment. In the first case he had seen, the idea of syphilis being present, both mercury and iodide of potassium had been used, but without any good result. Various forms of local treatment had been used; as glycerine, collodion, acetic acid, exclusion from air, and water dressing, but without any result. There was one remedy, however, which he had used in the last case, which seemed to be of immense service. The patient having, with the disease of the nails, lepra, he had prescribed Fowler's solution in doses of five minims, three times a day. The woman had been under this treatment less than six weeks, and recovery was progressing in the most satisfactory way; five of the nails were considered as well, and the others improving. The eruption of the skin was disappearing in a similar ratio. The inference deducible from this effect of arsenic would perhaps link the disease of the nails with the various forms of squamous eruption, in relation to its causes.

Dr. Hardinge had had one case of the same kind, in which there had been no evidence of syphilis.

Dr. Salter had had a similar case under his care for two years. The patient was a master tailor in large business, aged about 50, apparently of good constitution; but he had had syphilis, and had been treated by mercury, which he had not long given up when he came under Dr. Salter's care. The disease appeared to commence in the matrix, proceeding from a corner under the nail, and detaching it. When Dr. Salter first saw the patient, about three or four nails were affected; but in time, as these nails recovered, others were attacked, until at last nearly the whole of the nails were involved. Dr. Salter thought the disease possibly a variety of psoriasis palmaris. After various remedies, about two or three months ago he gave arsenic; and the effect was quite remarkable. When Dr. Salter last saw him, he was nearly well. The case coincided closely with those of Dr. Richardson.

Mr. W. Adams mentioned a case under his observation, which evidently belonged to the same class. A lady, aged 35, had three fingers on each hand affected in a similar way. Mercury had been given some years ago to a great extent, but without any good result. The knowledge of the pathology of the disease was very important. The patient was otherwise very healthy; and there was no ground for suspecting syphilis. Within the last few days, Mr. Startin had prescribed collodion to the nail, blistering fluid round it, and very small doses of mercury. If this treatment failed, Mr. Adams would propose the use of arsenic.

Mr. Gay did not think the complaint rare. He had two cases under his care. He believed that the disease was of syphilitic origin. In two cases he had seen it connected with alopecia, which is essentially syphilitic. The idea of the disease being connected with syphilis was also favoured by the recovery of some nails while others were being attacked.

Mr. Hulke had generally treated syphilitic eruptions with iodide of potassium, under which they had improved; while, in the non-syphilitic eruptions, he had used arsenic with good effect.

Dr. Richardson said that, in the first case related by him, the patient had tried a variety of local treatments, such as collodion, exclusion of the air by oiled silk covered by a stall; glycerine, acetic acid, etc., without any result. Of the treatment of the second case, Dr. Richardson did not know anything. The last time he saw the patient, he had recommended iodide of potassium.

Retroversion of Gravid Uterus: Difficulty of Diagnosis. Dr. Joseph Rogers related the following case, which had occurred under his care in the Infirmary of the Strand Union. On April 6th there was admitted a single woman, aged 27, who had never had a child, with dropsy confined to the lower limbs, and general ill health. On examination, the abdomen was found to be much distended, and the umbilicus very prominent. A tumour could be seen projecting above the umbilicus in the middle line: on pressure, it was found to be very firm and resistent, and its limits could be easily defined. The nipples were developed; the areola was enlarged and of deep colour; and the papillæ were prominent. The patient had not menstruated since Christmas, and then but slightly; previously to which, the catamenia had been absent since September. She had been ill several weeks; the swelling of the legs had prevented her from following her calling as a laundress. She denied being pregnant, but admitted that she might be so. Vaginal examination was difficult, from the great distension of the labia. The cervix uteri was shortened to about half an inch; the uterus was evidently much developed posteriorly, and contained something. Repeated auscultation discovered nothing. The bowels were confined; the urine was small in quantity, but passed frequently. The diagnosis formed was that of pregnancy, probably of the fifth mouth; the œdema being probably attributable to kidney-disease. A jalap and calomel powder was ordered, and a mixture of a solution of acetate of ammonia with antimonial wine;

Dover's powder was also given. The next day, the urine was more abundant, and was found to be albuminous. On April 10th, she complained of much nausea, for which effervescing salines were given. The urine was diminished in quantity; the legs were much distended and very painful; and the abdomen was much distended. Two or three days afterwards, on account of the swollen and painful state of the legs, Dr. Rogers employed acupuncture with relief. On April 14th, the patient was feverish, and had great pain in the region of the kidney, and passed some urine, which presented a bright red deposit —the urine appearing as if carmine had been mixed with it. She was cupped over the kidneys, and Dover's powder was given at night. The next day, she felt relieved; but the urine still contained old effused blood. On April 16th, she had been purged fifteen or twenty times. When Dr. Rogers saw her, she appeared to be suffering from pains like those of labour, in consequence of which he desired a midwife to be sent for. An astringent mixture with opium was ordered. At night, she was much worse; she had passed no urine all day, though frequently striving to do so. On examination *per vaginam*, the recto-vaginal fossa was found to be completely blocked up by a large tumour. On lifting it a little, urine flowed over the hand; but the tumour was nearly immoveable. Dr. West, having been sent for, expressed his opinion, after examination, that there was a fibrous tumour, which had shifted its position, and was pressing on the rectum and bladder. He introduced a catheter, and drew off seven pints of urine. An opiate was given. On April 17th, three pints of urine were drawn off in the morning, and six pints in the evening; the latter being ammoniacal and very fœtid. The œdema of the legs was lessened; but the abdomen was enormously distended. The bowels could not now be moved by injections, which were returned. The next day, she was worse; and on April 19th, she was sent into the Middlesex Hospital, where she died on the following day. At the *post mortem* examination, the patient was found to have ascites and œdema of the lower limbs. The abdomen contained much turbid serum. The intestines were matted together by a large quantity of recent lymph. The bladder, which was empty, was entirely adherent to the abdominal walls; the mucous membrane presented hæmorrhagic exudation. The vesico-vaginal pouch was thickened to the extent of a quarter of an inch, and covered a retroverted uterus of the size of a hedgehog. The os uteri was circular; the membranes protruded; the organ contained a fœtus of uncertain age. The kidneys were large, pale, and flabby; the capsule was now adherent; the cortical substance was enlarged, and filled with fat. Dr. Rogers thought that the patient must have had kidney-disease for some time, and that the uterine tumour had become more distinct from the diminution of the ascitic effusion, and the consequent relaxation of the abdominal wall.

Dr. Salter asked whether there was œdema of the face or upper limbs during life. It had appeared to him at first that there was no evidence of kidney-disease. As to the coloured urine, he believed that bright red blood never came from the ultimate structure of the kidney. He did not think that during life there was evidence of anything in the kidney besides congestion from pressure on the vena cava.

Dr. Rogers said that in a large experience he had not found œdema of the face a constant sign of kidney-disease.

Dr. Richardson suggested that the colouring matter in the urine was possibly uric acid mixed with urœmatine.

The President regarded the *post mortem* description as not affording sufficient evidence of severe kidney-disease.

Dr. Salter had not intended to say there was no kidney-disease in the case; but he would not give up the diagnostic importance of the localisation of dropsy. He believed it was impossible there could have been such an amount of œdema of the lower extremities indicating kidney-disease without œdema of the face.

Dr. Rogers had seen cases in which the œdema of the face in kidney-disease had disappeared.

Mr. De Méric observed that the real interest of the case hinged on the error of diagnosis between pregnancy and fibrous tumour.

Treatment of Varicose Veins. Mr. Price showed a drawing illustrating a case bearing on Mr. Lee's recent paper on the treatment of varicose veins. The patient was a woman, aged 45, who had had varicose veins for fifteen or eighteen years. Mr. Price applied needles at intervals, and divided the vein between them. The needles caused no disturbance, and were removed in a week. The case had so far proved successful.

Needle for passing Wire-Sutures. Mr. Price also exhibited a needle which he had contrived for passing wire-sutures. It was a tubular needle, through which the wire was passed, and pushed down by a slide in the wooden handle of the needle.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, May 8th, 1860.

F. C. Skey, Esq., F.R.S., President, in the Chair.

Report on the condition of the prostate in old age, founded on the dissection of one hundred specimens in individuals over sixty years of age. By John Cockburn Messer, M.D., R.N.

In order to facilitate the consideration of the details of one hundred dissections of the prostate after the age of sixty, the author had arranged them into three classes—viz., 1. Those under four drachms weight. 2. Those between four drachms and six drachms weight. 3. Those over six drachms weight. By so doing, a broad division was at once made between those that were comparatively healthy—namely, the first and second classes; and those that were so altered as to be likely to affect the health of the patient, comprised in the third class.

1. In the first class there were twenty cases, giving—

	Minimum.	Maximum.	Medium.
Age	60	94	76·2
Weight	4 drs.	6 drs.	4 drs. 57 grs.

These cases, for the most part, differed from the normal state only in point of size, and offered no obstruction to the flow of urine. The presence of small black concretions was very general in these as well as in all the other cases. In four cases there were slight appearances of the formation of circumscribed tumours. In one case abscess was found associated with stricture of the urethra. In one the posterior lobe showed a tendency to enlargement; but it was difficult to say whether the enlargement was more intimately connected with the prostate or with a fasciculus of the muscular coat of the bladder.

2. In the second class were forty-five cases, which might be considered normal in condition, giving—

	Minimum.	Maximum.	Medium.
Age	60	94	76·2
Weight	4 drs.	6 drs.	4 drs. 55 grs.

None of these cases suffered from urinary obstruction connected with the prostate during life, although the bladder was often found fasciculated. In twelve of these, circumscribed tumours were observed, for the most part only slightly developed; in three, the posterior lobe was slightly enlarged; in one, abscess was present, the consequence of general paralysis.

3. In the third class were thirty-five cases, which gave—

	Minimum.	Maximum.	Medium.
Age	60	87	75·2
Weight	6 drs. 15 grs.	48 drs.	15 drs. 2 grs.

In seventeen of these, the enlargement affected both lateral and posterior lobes; in fourteen, the enlargement existed chiefly in both lateral lobes; in one, the enlargement affected only the left lateral and posterior lobes; in one, enlargement preponderated in the left lateral and posterior lobes; in one, enlargement preponderated in the left lateral lobe; in one, enlargement preponderated in the posterior lobe. Thus it appeared that 35 per cent. of all prostates after the age of sixty are abnormally large, 20 per cent. are abnormally small, and 45 per cent. are within the limits of the normal weight. This enlargement is principally caused by increase of the fibrous element of the body; the glandular also being increased in amount, but not to the same degree. This new fibrous tissue is deposited in concentric layers, and so forms circumscribed tumours. The frequency of this fibrous deposit is shown by the fact that it was present in thirty-four out of thirty-five cases of enlargement, in twenty-seven of which it was found in the form of tumours; in seven there was no appearance of tumours. It also appeared that those glands in which the tumours were marked are liable to the greatest enlargement, as some thus affected were found to weigh thirty drachms, and even forty-eight drachms, while those in which the tumours did not appear never weighed more than seventeen drachms.

A comparison of the relative frequency of enlargement of the different parts of the gland showed that the lateral lobes are much more liable to be affected than the posterior; thirty-four of thirty-five cases were affected in their lateral lobes, while only nineteen of the same number were affected in the posterior lobe. It is rare to find the posterior lobe enlarged while the rest of the gland is normal; only one such case in thirty-five was found. Enlargement of the posterior lobe is the chief

cause of obstruction to the flow of urine; but that may also be the consequence of hypertrophy of the lateral lobes, especially when it takes the form of tumours, and they project inwards upon the urethra.

It appears, from the nearly equal average age in all three classes, that the condition of the prostate does not materially affect the longevity of the individual. A slight difference does, however, exist in favour of those in whom the gland is most nearly normal, the average in these being 76·2, and in the enlarged 75·2.

The presence of abscess in the prostate produces enlargement to a greater or less extent, seldom, however, to the same extent as fibrous deposit. The most frequent cause of abscess in the prostate appears to be obstruction to the flow of urine, either from stricture of the urethra, enlargement of the prostate, or the consequence of paralysis of the bladder. The frequency of abscess in the enlarged gland is in the proportion of five in thirty-five; in those between four drachms and six drachms, one in forty-five; in those under four drachms, one in twenty. The causes in these cases were—stricture of urethra in three cases; frequent retention in three cases; paralysis of bladder in one case. Tubercle is the only other abnormal deposit giving rise to enlargement of the prostate noticed in these cases, and that only in one case, which weighed twenty-four drachms. A similar deposit was observed in the lungs, right kidney, and mucous coat of bladder in this subject.

While retention of urine, more or less complete, is the most important symptom and consequence of enlarged prostate, it is not found in every case. The proportion of men in advanced years suffering from the consequences of enlarged prostate is indeed small. Thus amongst 1,600 old men, with an average sick list of two hundred, not more than ten are under treatment for this disease, and half of these only occasionally. A much larger number must be affected with enlargement, as shown by *post mortem* examinations of the gland. In thirty-five cases of enlargement found after death, thirteen suffered no urinary symptoms during life, and two others only after the occurrence of serious lesions to the nervous system shortly before death. Although many of these cases were not greatly enlarged, some of them plainly showed that the prostate may be greatly altered, and yet the patient be free from urinary obstruction, as in one case, where the prostate weighed eight drachms thirty grains, with prominent enlargement of the posterior lobe; in another, which weighed nineteen drachms thirty grains, with general hypertrophy, and great encroachment on the urethra; in another, which weighed twenty-six drachms thirty grains, with the enlargement principally seated in the lateral lobes.

On considering the favourable circumstances for the formation of phosphatic calculi in cases of enlarged prostate, it is surprising that these concretions are not more frequently found. Of the thirty-five cases of the third class, phosphatic calculi were found in two, the largest weighing seven drachms forty-five grains; in another, two uric acid calculi, of about thirty grains each, were found.

OBSTETRICAL SOCIETY OF LONDON.

Wednesday, May 2nd, 1860.

Edward Rigby, M.D., President, in the Chair.

The minutes of the last meeting having been read and confirmed, the following gentlemen were balloted for and elected Fellows of the Society; namely, Henry M. Holman, M.D.; William Leishman, M.D.; Henry F. Marley, Esq.; and T. H. Waterworth, Esq. Four gentlemen were also proposed as candidates for the Fellowship.

Ruptured Perinæum: Birth of the Child between the Os Vaginæ and Anus. By I. B. Brown, Esq. In this case, the child's head rested on the perinæum; but delivery was delayed, though the pains were very violent, owing to the non-dilatation of the os vaginæ. While a friend of the attending practitioner went to fetch the forceps, the perinæum gave way between the os vaginæ and anus, and the child was expelled completely through the opening. A fortnight afterwards, Mr. Brown pared the edges of the wound, which remained unhealed, and cut through the fourchette. Iron wire sutures were introduced, and the parts all healed completely.

Old Forceps. Several old and curious pairs of Midwifery Forceps were exhibited to the meeting by Dr. F. C. Cory. The manner in which these instruments were applied was explained by the President.

Congenital Hernia (?) of the Liver. By A. Meadows, M.D. The whole of the viscus was enclosed in a pouch, to which it was firmly adherent, and which had protruded through the umbilical opening, drawing forward with it the inferior vena cava, which entered the thorax just behind the sternum. The cæcum was situated in the right hypochondrium, the colon descending thence on the right side to the pelvis, where it ended in the rectum. Portions of the stomach and small intestine were also contained in the pouch with the liver, but there was no obstruction of the bowel. The child died one month after birth, dry gangrene having extended to the mass after the death of the umbilical cord.

The Minute Anatomy and Structure of a Fibrous Tumour of the Womb, exhibited to the Society at the February Meeting. By Henry G. Times, Esq. The tumour was uterine in its origin; its form was kidney shaped; it was of the size of a child's head at birth, and weighed ten pounds. The structure consisted of uterine fibres and white fibrous tissue, arranged concentrically, with abundant calcareous deposit amongst the laminæ. The pedicle was formed of uterine tissue, spreading out and embracing the sides of the tumour. The length of the uterus was six inches, and the os was occluded an inch from its orifice. By the tumour's weight in growth, the body of the uterus was separated two inches from the cervix, and all the openings into it were occluded. The Fallopian tubes were six inches long, but both alike occluded. Both ovaries were present, but were lengthened to three inches into round and cord-like ligaments; the usual ovarian structure, however, was recognisable in both.

ON CERTAIN PHENOMENA, FACTS, AND CALCULATIONS INCIDENTAL TO, OR CONNECTED WITH, THE POWER AND ACT OF PROPAGATION IN FEMALES OF THE INDUSTRIAL CLASSES IN THE METROPOLIS; DERIVED FROM AN EXPERIENCE EXTENDING TO UPWARDS OF TWELVE THOUSAND CAREFULLY OBSERVED CASES. BY A. B. GRANVILLE, M.D., F.R.S.

Dr. Granville gave the result of his experience at two lying-in institutions—the Western General Dispensary and the Benevolent Institution—extending over a period of several years, during which he had acted as obstetrical physician, and had carefully recorded upwards of twelve thousand cases, out of nearly twenty-two thousand admissions, in minutely subdivided registers.

The summary of the information thus collected Dr. Granville had arranged in thirteen tables, two appendices, and a coloured diagram, which were circulated amongst the auditors present, whilst the memoir or report was being read by the Secretary, giving a running commentary, with facts and explanations, illustrative of the contents of the tables themselves. All these facts were preceded by the enumeration of the several means adopted by the author during his public practice, through which a knowledge of those facts was obtained and registered. Dr. Granville dwelt on the benefit which several branches of human polity would derive from tabulated and positive facts such as obstetrical reporters and obstetrical societies alone can supply; and observed that it is, indeed, difficult to conceive how questions concerning the laws which govern the reproduction and preservation of the human species, or which regard the natural duration of its existence, or the valuation of female and infant life, or the theory of population, can be discussed in the absence of such information as obstetricians alone daily and hourly witness and collect. According to M. Fourier, the eminent French mathematician, there is "in all statistical researches a general proposition to which too much attention cannot be paid—namely, that the indefinite repetition of events, generally denominated fortuitous, does away with the degree of changeableness that may belong to them. In a series of an immense number of facts, there are none but constant and necessary relations, determined by the nature of things;" and such immense number of facts the published records of the Dublin Hospital, the Maternité of Paris, the reports of Carus, Siebold, Collins, Montgomery, Churchill, Scanzoni, etc., amply supply.

Dr. Granville added his own quota of original facts, which he divided into four great sections:—1, Ages of Pregnant Women; 2, Produce of Pregnancies; 3, Multiparous Births; 4, Parturition. He stated at the conclusion that another great source of facts remained to be treated, namely, abortion; without which, he maintained, all attempts at calculating and duly estimating the power of reproduction in the human species must necessarily be imperfect; but the great length to which the memoir had extended precluded the possibility of this subject being treated on the present occasion, and would be re-

served for another season, together with the consideration of some of the most striking cases of the diseases of females and children.

The subject of the *Ages of Pregnant Women* elicited some curious results, the principal of which is, that Englishwomen arrive at the culminating period of prolificacy at thirty years of age. The author had shown, on a former occasion, that the same culminating point in France was at twenty-eight and a half. This culminating point was shown in the coloured diagram, in which were also exhibited two other facts—that just before and immediately after the period of thirty years, reproduction comparatively stood still in the first, and sank to a very low scale in the second: as if, in the former, Nature prepared herself for an immense exertion, being no less than the duplication of births; and in the latter she showed tokens of exhaustion.

Under the head of the *Produce of Pregnancies* at both charities, we have a total of 12,478 children, or 6615 boys and 5863 girls, the proportion of males to females being as 1 1-9th to 1, which is a somewhat higher rate than the one cited by Quetelet as the general proportion of the sexes in Europe—viz., 106 males to 100 females. Of the above number of uniparous births, 277 were of still-born children, the male sex preponderating. This proportion of still-born is a more favourable rate than is recorded in all the principal and well-known obstetrical reports. Of multiparous births, Dr. Granville recorded 136 cases of twins, and 4 cases of triplets, being a case of twins in 62¾ labours, and 1 case of triplets in 3154 cases. The Dublin Report gives 1 triplet case in 4652 births. Bérard and Robin assign the produce of twins in Frenchwomen as 1 in 70 or 80 deliveries, and triplets 1 in 7088 cases, being half the English rates. In 1820, at the Western General Dispensary, there had been 16 twin cases in 669 deliveries, being 1 twin case in 42 labours.

Under the head of *Parturition*, the author brought forward afresh his proposal for a much simpler classification of labours into active and passive; the latter being subdivided into manual and instrumental. After mentioning sixteen different positions in which the child presents, besides what he calls the primitive or normal one, under each of which Dr. Granville gave the proportion as compared to the total number of labours; and after having dwelt on the comparative frequency of certain positions to that of others, he proceeded to show the number of passive labours that had taken place under his direction in 12,478 deliveries, distinguishing the manual from the instrumental, and giving the results as to the children born. In the 267 cases of abnormal presentation, the proportion of still-born children after passive labour was 1 in 304. Another fact was elicited from the tables, viz., that the manual and instrumental labours were nearly equal. Under the head of mortality of the mother the proportion of 1 in 500 was recorded. Some remarks were made on the use of the forceps, Dr. Granville advocating its early employment in labour to prevent craniotomy; the proportion of which operation, in his experience, amounted only to 9 in 267 cases of abnormal presentation, or 1 in 1380 labours. The proportion of forceps cases had been 1 in 621 of all the labours. Dr. Granville invariably used a somewhat larger form of Assalini's forceps. The general result of his practice gave a proportion of passive to active labours as 1 in 103.9, of hand labours as 1 in 218, and of instrumental labours as 1 in 270.

The subjects of placenta prævia, convulsions, hæmorrhage, syncope, and a case of locked jaw in parturition, were referred to, with their respective frequency, and the manner of their termination. The author concluded with the promise of a second communication for next season, should he be spared another year.

Dr. Tyler Smith observed that when a gentleman of Dr. Granville's age and experience came before the Society with an elaborate paper, it was only due to him that he should be treated with great respect. But still a few critical remarks ought to be made to prevent errors being perpetuated. Now, although Dr. Granville's practice was doubtless good in its day, still it was not up to the mark of the present time. For instance the forceps had only been applied once in every 600 cases; but no one could now safely conduct a large midwifery practice without recourse to this instrument much more frequently than these figures indicated. Moreover, the maternal mortality had not been mentioned. With regard to deformities of the fœtus, it was now allowed by all physiologists that they could be explained without having recourse to a belief in the power of the mother's imagination. The case mentioned by Dr. Granville was not an example of arrested development, but simply an instance of intrauterine amputation. Dr. Montgomery had admirably explained this subject in his valuable essay. It is also well known that the fœtus in utero suffers from small-pox; but he never before heard that this disease was due to the mind of the mother acting upon the unborn child.

Dr. Murphy asked for an explanation of one or two points, especially as to the earliest and latest periods of life at which the author had known pregnancy to occur. He also remarked that it seemed to him very difficult altogether to ignore the influence of the mother's imagination in producing certain deformities of the fœtus.

Dr. Tanner said that, owing to the time allowed for the meeting having elapsed, he would only make two observations on the paper which had been read. First, with regard to the influence of the mother's imagination or fears in producing deformity of the fœtus. On this head, he would remind the fellows that Dr. William Hunter took some pains to investigate the subject at the Lying-in Hospital to which he was attached as physician; and with this result—namely, that in two thousand cases there did not occur a single instance in which there was any coincidence between the fright, or accident, or longings of the mother, and the deformity of the child. Dr. Tanner had himself met with an instance where the evidence in favour of some connexion between a fright and the deformity appeared to be strong until the case was examined into, when it was found that a normally developed gland had been mistaken for disease. The second point was as to the propriety, in breech presentations, of adopting Dr. Granville's practice in using the blunt hook to pull down the legs. Dr. Tanner considered such a proceeding would often be fatal to the infant. He always endeavoured, on the contrary, to keep the legs up rather than to pull them down, so that the umbilical cord might not be unduly compressed.

Dr. Druitt wished to make only one remark. The question as to the influence of the maternal imagination in producing deformity of the child ought to be looked at from every point of view. Now, how did the advocates of this theory explain the malformations of chickens, etc.? Surely no fright to the hen while sitting could affect the chick in the egg.

Dr. Granville having replied, the meeting adjourned until June 6th.

Editor's Letter Box.

THE COURSE OF EPIDEMICS.

Sir,—The following question has been propounded to me, Can any of your intelligent correspondents give me information thereon?

"What facts have been noticed with regard to the direction in which epidemics generally travel?"

I am, etc., Inquisitor.

May 10th, 1860.

POOR-LAW MEDICAL REFORM.

Sir,—I beg to inform those Poor-law Medical Officers who think they can forward the present movement in our favour by enlightening the public,—either generally through the means of the newspaper press, or by putting into the hands of their friends and neighbours a short printed statement of the present state of the question and a brief *resumé* of our case—that I have directed the printer of a local paper, in which I have inserted letters on the subject, to strike off a number of copies, and to keep up the types for a short time. The quantity of printed matter is equal to that of between one and two columns of the *Times*, and consists mainly of extracts from official documents; evidence given before the Select Committee of the House of Commons; Mr. Griffin's letters and tables; etc. Those who think it too long for insertion in the local papers can curtail it; or some parts may be omitted in favour of statements of facts of local interest.

It is hoped that gentlemen will find the whole suggestive. They will assuredly save much time and trouble necessary to collect and arrange the materials for themselves by procuring these printed slips. To pay for postage, printing, etc., they will be charged thus:—one or two copies, 4d.; four for 5d.; six

and above, 1d. each. They will be sent on application, by letter, enclosing the proper number of postage stamps to "L," Brown's Library, Canal Street, Salisbury. I enclose my card.

I am, etc., MEDICUS.

May 16th, 1860.

Parliamentary Intelligence.

HOUSE OF COMMONS.—Friday, May 11th, 1860.

Medical Officers in the Navy. Sir E. GROGAN asked the Secretary to the Admiralty what steps had been taken since the 24th February last, to carry into effect the provisions of the late Naval Warrant as regarded Medical Officers in the Navy.

Lord C. PAGET: I have to inform the hon. baronet that surgeons are now about to receive a new uniform. The reasons for the delay which has taken place in that matter are, that we have felt it necessary that all the non-executive officers in a ship should have a uniform distinct from that of the executive officers, and that we did not wish to decide what should be the uniform of the first of these classes until the House of Commons should agree to grant the sums necessary for improving their general condition. With regard to cabins, I cannot hold out the least hope that the Admiralty will give the surgeons the same kind of cabins that are given to captains of ships. We are anxious that proper cabins should be provided for surgeons, but we cannot place them in the same position in that case as captains. My right hon. friend opposite has stated that, according to the information which he received, a cabin was refused to an assistant-surgeon on board the *Queen*, while that accommodation was afforded to the bandmaster and other inferior officers. Captain Hillyard, however, who commands that vessel, has informed me that he gave every cabin he could for the use of the assistant-surgeons, and that at last one of them wished to turn him out of his own steward's birth, as it was called. He refused to accede to that demand; and that is the only foundation for the story to which my right hon. friend has alluded.

Monday, May 14th.

Nuisances Removal Bill. The House went into Committee on this Bill.

Mr. LOWE said his object in introducing the Bill was to promote the sanitary improvement of the country. The object of the Bill was to carry out the intention of the law as it at present existed, that there should be in every place in England a local authority responsible for its health, a provision made under the Act of 1855, but which was not carried out as it ought to be. Under the existing Act, no fewer than six local authorities had this power, but only three of them virtually exercised it. There were in England and Wales 14,398 places in which there ought to be local boards of health, each having a medical officer, but only 2,000 out of the 14,398 had complied with this sanitary requirement, or one-seventh of the whole. It was to remedy this defect and oversight that the Bill was proposed; and it was further proposed by the Bill to invest the guardians of the poor, who had already a medical officer, with the requisite responsibility.

Mr. KNIGHT made some remarks in opposition to the Bill.

Lord FERMOY moved that, the hour being late, the chairman report progress, which was agreed to.

Tuesday, May 15th.

Recreation Grounds. Mr. SLANEY moved "That it is expedient Her Majesty's government, or parliament, should take steps to inquire how best adequate open spaces in the vicinity of our increasing populous towns, as public walks and places of exercise and recreation, may be provided and secured; and to encourage and direct efforts, by private subscriptions, voluntary rates, or public grants, to carry out such objects." Since the commencement of the present century, the town populations throughout the country had increased in the proportion of two to one, as compared with the population in the rural districts; and it was extremely desirable that means should be adopted for the purpose of ensuring to them places of recreation at a distance from their crowded and unhealthy dwellings.

Sir G. C. LEWIS thought the obvious course was that where places of public recreation were needed in large towns, they should be provided by the local town councils and existing Acts. The existing law seemed to provide various schemes by which the purpose the hon. member had in view might be accomplished. Though he concurred in the object his hon. friend had in view, he could not give his assent to the proposition he had introduced to the House. If any amendment of the existing law could be suggested, he should be quite ready to give every attention to the proposal; but he did not see that any advantage would be derived thereby, or any assistance given to the promotion of this object, from the adoption of this general proposition.

The motion was then put, and was negatived without a division.

Medical News.

BIRTHS, MARRIAGES, DEATHS, AND APPOINTMENTS.

** In these lists, an asterisk is prefixed to the names of Members of the Association.*

BIRTHS.

Of sons, the wives of—

COLBORNE, W. H., M.D., Chippenham, on May 7. (Twins.)

COUCH, W. O., Esq., Surgeon, Islington, on May 13.

MONKS, Edward, Esq., Surgeon, Arbour Terrace, Commercial Road, on May 11.

POPE, John R., Esq., Surgeon, Montague Square, on May 13.

PROTHEROE, Edward S., Esq., Surgeon Royal Artillery, at Port Louis, Mauritius, on April 4.

Of daughters, the wives of—

DALBY, Wm. B., M.D., Surgeon R.N., at Alverton, Penzance, on May 13.

*HUGHES, R., L.R.C.P.Ed., at Cliftonville, Brighton, on May 9.

JACKSON, Robert, M.D., Notting Hill Square, on May 13.

MILLER, Montague, M.D., Stoke Newington Road, on May 6.

*PARSONS, Joshua, Esq., Beckington, on May 13.

*ROSCOW, Peter, Esq., Folkestone, on May 8.

MARRIAGES.

BATT, Edward, Esq., Surgeon, Witney, to Emma Vere, only daughter of the late Captain Augustus V. DRURY, R.N., at All Saints' Church, St. John's Wood, on May 10.

*DRYLAND, John W., Esq., of Kettering, to Sarah L., daughter of John C. THOROWGOOD, Esq., of Totteridge, at Tottenham, on May 10.

*FOOTE, Gustavus, Esq., Kington, to Lucy Ann, youngest daughter of the late John S. CHURCHILL, Esq., of Wells, at Wedmore, Somerset, on May 10.

WALLACE, John, Esq., Surgeon R.N., to Deborah, second daughter of the late Jacob T. NAISH, Esq., of London, at Borrowstowness, on May 9th.

WILKIN, Henry J., Esq., Lieutenant 7th Hussars, eldest son of H. Wilkin, Esq., Surgeon, Connaught Terrace, to Maria M., second daughter of the late Alexander CHALMERS, M.D., Bengal Army, at Meerut, on February 13.

WILKIN, Herbert C., Esq., Surgeon, of Connaught Terrace, to Elizabeth, second surviving daughter of the late Wm. LICHFIELD, Esq., of Upton House, Hants, on May 11.

DEATHS.

EDMONDS. On May 10th, aged 10 months, Mary Louisa, youngest daughter of Spencer Edmonds, Esq., Surgeon, Appleby, Leicestershire.

*ELLISON, King, Esq., Surgeon, of Liverpool, at Bath, aged 59, on May 6.

HAMILTON, Andrew, M.D., at Burt, Londonderry, on May 1.

*MARTIN, Peter J., Esq., at Pulborough, aged 74, on May 13.

KNAGGS, William A., Esq., Surgeon, Bloomsbury, aged 28, on May 14.

MILLER, Samuel, M.D., at Chelmsford, aged 81, on May 15.

MONK. On March 16th, at Port Louis, Mauritius, aged 22, Ellen, wife of W. Monk, Esq., Medical Staff.

RETZIUS, Andreas, M.D., Professor of Anatomy and Physiology in the Royal Caroline Institute, Stockholm, and Corresponding Member of the British Medical Association, aged 64, on April 18.

SALTER, Wm., Esq., Surgeon, at Surbiton, aged 51, on May 10.

SHANNON. On May 11th, at Bridge Road, Lambeth, Eve, wife of D. Shannon, Esq., Surgeon.

PASS LISTS.

ROYAL COLLEGE OF SURGEONS. The following members of the College, having been elected Fellows at previous meetings of the Council, were admitted as such on May 10th:—

BENNETT, Henry, Shaftesbury; diploma of membership dated May 20th, 1825
COLGATE, Robert, Eastbourne; September 6, 1805
DALTON, William R., Royal Navy; April 24, 1835
GREENWOOD, William, Huddersfield; September 2, 1825
HALE, Frederick H., H.M. Consul, Whampoa; Jan. 14, 1842
HALL, William, Hackney; June 1, 1821
McDOUGALL, the Right Rev. Francis T., Lord Bishop of Labuan; June 3, 1839
NESS, John, Helmsley; March 10, 1843
PROSSER, Thomas, Monmouth; April 28, 1843
RANDALL, John, Portman Street; May 8, 1840
SHUTE, Gay, Greenwich; November 14, 1834
SMYTH, Spencer T., Great Yarmouth; August 5, 1842
STROVER, Thomas R., H.M. Bengal Army; April 10, 1838
WOOLCOTT, John, Brook Street; December 3, 1841

APOTHECARIES' HALL. LICENTIATES admitted on *Thursday, May 10th*, 1860:—

BAINES, Charles W., Bradford-on-Avon
HAYWARD, Henry, Brighton
KITCHING, Thomas, Mount Stead, Yorkshire
LAVERICK, John V., Hinderwell
PRITCHIT, James L., Osbourn, near Folkingham
SEQUEIRA, James S., Jewry Street, Aldgate
THOMPSON, H., Westerham
WHALLEY, William, Oxenhope, near Keighley

The following gentlemen also, on the same day, passed their first examination:—

CLARKE, A. F. S., Manchester School of Medicine
HUNSTONE, Geo., Broughton, Manchester

UNIVERSITY OF ST. ANDREW'S. List of gentlemen on whom the Degree of Doctor of Medicine was conferred on May 11th, 1860:—

APPELBEE, Edward, M.R.C.S., Cropthorne, Worcestershire
BANNISTER, Alfred James, M.R.C.S. and L.A.C., Chelsea
BARLOW, Wm. Henry, M.R.C.S. and L.A.C., Manchester
BERNARD, John Celestin, M.R.C.S., Trinidad
BOWER, Edmund, M.R.C.S. and L.A.C., Weymouth
BROWN, E. A., L.R.C.P.Ed. and M.R.C.S., Eastwood, Notts.
BUBB, Horatio Warner, M.R.C.S. and L.A.C., Welwyn, Herts
CANN, Thomas, M.R.C.S. and L.A.C., Seaton, Devon
CARY, Tristram, M.R.C.S.I., Ireland
CHARLTON, Egbert, M.R.C.S. and L.A.C., Tonbridge
CHEESMAN, John, M.R.C.S. and L.A.C., Huntingdon
COOK, John, M.R.C.S., London
CUTHBERT, Clarkson, L.R.C.S.Ed., Edinburgh
DANSON, Henry, M.R.C.S., London
DICKSON, J. Steele, Lic. Fac. Phy. and Surg. Glasgow, Belfast
DREWRY, George Overend, M.R.C.S. and L.A.C., London
DUCKWORTH, Frederick, Madras
EARLE, Fredk. John, M.R.C.S. and L.A.C., Sydenham
FAWKNER, John, M.R.C.S. and L.A.C., Manchester
GARDINER, William, M.R.C.S. and L.A.C., Cork
GIBSON, Thomas, M.R.C.S. and L.A.C., Liverpool
GILLESPIE, Franklin, L.S.A.I., Cork
GOYDER, David, M.R.C.S.Ed., Glasgow
HALL, E. F., M.R.C.S. and L.R.C.P.Ed., Thetford, Norfolk
HOLLAND, R. C. B., M.R.C.S. and L.A.C., Clifton, Bristol
HOWARD, J. F., M.R.C.S. and L.A.C., Shaw, near Oldham
HUDSON, George, M.R.C.S. and L.A.C., Newport, Yorkshire
LAWRENCE, Arthur Garnons, M.R.C.S. and L.A.C., St. Mary's Hospital, London
LEACHMAN, Albert Warren, M.R.C.S., London
LEDWARD, Ralph Worthington, M.R.C.S., Manchester
MONRO, William, M.R.C.S.Ed., Arbroath
MOTT, Charles, M.R.C.S. and L.A.C., Walton-on-Thames
ORTON, George, M.R.C.S., Leicestershire
REA, Hugo Porter, M.R.C.S., Belfast
RINGROSE, Ernest, M.R.C.S. and L.A.C., Barnet
SNAPE, Charles, M.R.C.S. and L.A.C., Great Stanmore
SOUTHWOOD, Joshua, L.R.C.P.Ed. and M.R.C.S., London
STOVIN, Cornelius Frederick, Rotheram, Yorkshire
STUTTER, F. A., M.R.C.S. and L.A.C., Upper Sydenham
THIN, George, M.R.C.S.Ed., Penicuik
THOMPSON, A., M.R.C.S. and L.A.C., Sandford, Cumberland
TRONSON, John Mortlock, M.R.C.S., Assist. Surg. H.M.S. *Hogue*, Greenock
TURNER, Roger, M.R.C.S., Petworth
WALKER, George, M.R.C.S. and L.A.C., Manchester

UNIVERSITY OF EDINBURGH.

THE following ordinance has been recently issued by the Scottish Universities Commission, on the subject of Degrees in Medicine:—

Whereas, on the sixth day of August in the year 1859, the Commissioners made and published an ordinance with reference to the granting of Degrees in Medicine in the University of Edinburgh; and whereas it is expedient that further regulations should be made with reference to the granting of such degrees: The Commissioners statute and ordain, with regard to the University of Edinburgh,

Primo, That the degrees in medicine, to be hereafter granted by the University of Edinburgh, shall be divided into three classes, and be designated respectively, Bachelor of Medicine (M.B.), Master in Surgery (C.M.), and Doctor of Medicine (M.D.).

Secundo, That the regulations contained in the said ordinance of the sixth day of August eighteen hundred and fifty-nine, shall be applicable to the granting of the degree of Bachelor of Medicine and Master in Surgery: Provided always, that the degree of Master in Surgery shall not be conferred on any person who does not also at the same time obtain the degree of Bachelor of Medicine.

Tertio, That the regulation, contained in section III. of the said ordinance of the sixth day of August eighteen hundred and fifty-nine, shall extend to a degree in Arts conferred by any colonial or foreign University, which may, for this purpose, be specially recognised by the University Court.

Quarto, That the degree of Doctor of Medicine may be conferred on any candidate who has obtained the degree of Bachelor of Medicine, and is of the age of twenty-four years, and has been engaged, subsequently to his having obtained the degree of Bachelor of Medicine, for at least two years in attendance on an hospital, or in the military or naval medical service, or in medical and surgical practice: Provided always, that the degree of Doctor of Medicine shall not be conferred on any person, unless he be a graduate in Arts of one of the Universities of England, Scotland, or Ireland, or of such other Universities as are above specified, or unless he shall, before or at the time of his obtaining the degree of Bachelor of Medicine, or within three years thereafter, have passed a satisfactory examination in Greek, and in Logic or Moral Philosophy, and in one at least of the following subjects,—namely, French, German, Higher Mathematics, and Natural Philosophy.

Quinto, That the medical examiners for all candidates for Graduation in Medicine in the said University shall be the Professors in the Faculty of Medicine therein, and, in addition, three persons to be appointed annually by the University Court, who shall be selected from among the Fellows of the three following bodies,—namely, the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, or shall be persons otherwise fully qualified in the judgment of the University Court; such three persons to be eligible for re-election, and each of them to receive a sum of one hundred pounds for each year in which he shall act as examiner.

Sexto, That the studies of candidates for the degrees of Bachelor of Medicine and Master in Surgery shall be subject to the following regulations:—1. One of the four years of medical and surgical study, required by the said ordinance of the sixth day of August eighteen hundred and fifty-nine, must be in the University of Edinburgh. 2. Another of such four years of medical and surgical study must be either in the University of Edinburgh, or in some other University entitled to give the degree of Doctor of Medicine. 3. Attendance during at least six winter months on the medical or surgical practice of a general hospital, which accommodates at least eighty patients, and during the same period, on a course of practical anatomy, may be reckoned as one of such four years, and to that extent shall be held equivalent to one year's attendance on courses of lectures, as prescribed by the said ordinance. 4. One year's attendance on the lectures of teachers of medicine in the hospital schools of London, or in the school of the College of Surgeons in Dublin, or of such teachers of medicine in Edinburgh, or elsewhere, as shall from time to time be recognised by the University Court, may be reckoned as one of such four

years, and to that extent shall be held as attendance on courses of lectures, as prescribed by the said ordinance. 5. Candidates may, to the extent of four of the departments of medical study required by section V., sub-section 1 of the said ordinance, attend in such year or years of their medical and surgical studies, as may be most convenient to them, the lectures of the teachers of medicine specified in sub-section (4). 6. All candidates, not students of the University, availing themselves of the permission to attend the lectures of extra-academical teachers in Edinburgh must, at the commencement of each year of such attendance, enrol their names in a book to be kept by the University for that purpose, paying a fee of the same amount as the matriculation fee paid by students of the University, and having, in respect of such payment, a right to the use of the library of the University. 7. The fee for attendance on the lectures of an extra-academical teacher in Edinburgh, with a view to graduation, shall be of the same amount as that exigible by medical Professors in the University. 8. No teacher shall be recognised, who is at the same time a teacher of more than one of the prescribed branches of study, except in those cases where Professors in the University are at liberty to teach two branches. 9. It shall not be necessary for any teacher, attendance on whose lectures is now recognised for the purposes of graduation in the University, to obtain a new recognition from the University Court; and attendance on the lectures of every such teacher shall continue to be recognised as heretofore. 10. It shall be in the power of the University Court, if they shall see cause, at any time to withdraw or suspend the recognition of any teacher or teachers.

Septimo, That the provisions of the said ordinance of the sixth day of August eighteen hundred and fifty-nine, and of this ordinance, shall come into operation and receive effect from and after the fifteenth day of October in the present year.

Octavo, That persons who shall have begun their medical studies before the fifteenth day of October in the present year shall be entitled to graduate under the system in force before or after that date, according as they shall comply with the regulations in force in the University before or after that date.

[These ordinances, before becoming effectual, must be laid before both Houses of Parliament, and receive the approbation of her Majesty in Council.]

From the *Scotsman* of May 11, we learn that it appears that the above ordinance of the University Commissioners is not likely to come into force without great opposition. Already the Royal College of Physicians of Edinburgh, the Royal Colleges of Surgeons of England and of Edinburgh, and other influential bodies, have either lodged or are about to present petitions to the Queen in Council, praying to be heard by counsel against the ordinance. The Senatus Academicus also at a recent meeting resolved to endeavour to obtain some alterations. The great objection urged against the ordinance by the other medical bodies may be briefly stated to be that they are designed to bring University degrees into competition with the licences of the Colleges, and thereby to reduce their character, to lower the standard of medical education, to usurp functions which do not properly belong to Universities, and to injure the Colleges.

QUEEN'S COLLEGE, BIRMINGHAM. On the 17th of last month, the following resolutions were passed by the Council of this Institution:—"That, seeing that the opening of the Resident Department in Paradise Street, during the ensuing term, would entail expenses which the funds of the College are unable to meet, the Resident Department be forthwith closed, and notice be sent accordingly to the Resident Students." "That in consequence of the determination of the Medical Professors to discontinue lecturing during summer term, and the prior resolution respecting the Resident Department, together with the financial difficulties of the College, it is not considered expedient to reassemble the non-resident students after the close of the present vacation." On Wednesday, May 9th, a meeting of the Professors was held, at which Mr. Sands Cox, after calling attention to the foregoing resolutions, added the following remarks:—"On the 21st and 22nd April, I received letters from Mr. Syson, of Debach, Mr. Bath, of Glastonbury, Mrs. Perks, of Lichfield, Mrs. Carreg, Isle of Man, and others, complaining of breach of contract on the part of the College. Mr. Syson stated that he had paid nearly £100 fees in advance last October. As the professional guardian of the sons of these parties, I deemed that I was in honour bound to submit these communications to a legal friend, and was advised by him to apply through Sir H. Cairns, to the Court of Chancery, for an injunction to restrain the College from closing its doors. Through the strenuous and unwearied exertions of Mr. John Suckling, the injunction was granted. At a meeting held on Monday last, it was resolved, 'That Board be provided for the resident medical students, and that the Professors be requested to deliver their Lectures,' and that a copy of the resolution be forwarded to all the students, informing them that commons and instruction will be provided as usual. A scheme proposed by the Warden, Mr. Chancellor Law, has been carried in Council, by which all the debts of the College will be paid, and I have undertaken to take charge of the resident students until the end of the term. A short time ago the Professor of Materia Medica and the Professor of Midwifery sent in their resignations, which were not accepted—the laws providing 'that whenever any Professor wishes to resign his office, he shall give *six months* notice by letter, addressed to the Council, provided no such resignation take effect during the currency of a term.' Moreover, in the printed prospectus, issued from the College by the Dean of the Faculty, it has been publicly announced that the Lectures on Midwifery will be delivered during the summer session by Professor Berry, and the Lectures on Materia Medica by Professor Dr. Fleming. I feel confident that these Professors are gentlemen of too high honour and integrity to refuse to redeem their pledge. The hatchet has been buried in the Council, and I trust unanimity, harmony, and good feeling will now be restored. With regard to myself, I shall be most willing, as I have before proposed, to divide my chair with any gentleman the Professors may select; and should Dr. Bond continue to belong to the professorial body, I shall be most happy to find him associated with myself as Vice-Dean, an office which has been instituted both in King's College, and in University College, London." (*From Aris's Birmingham Gazette.*)

RETIREMENT OF A POOR LAW MEDICAL OFFICER. Last autumn, Mr. William Blower, of Bedford, who for a quarter of a century was one of the most prominent public men of the borough, and who indefatigably devoted himself to the duties of medical officer of the Bedford and Kempston district of the Bedford Union, as well as carried on an extensive private practice, was attacked by paraplegia, which suspended his career of usefulness. All hope of restoration being at an end, he sent in on May 4, to the guardians of the Bedford Union, his resignation of the office he long held. The warmest sympathy was expressed by the guardians on the reading of the letter, and the resignation was reluctantly accepted as a lamentable necessity; but a resolution was unanimously carried and placed upon the books in the following terms, to evince the estimation in which Mr. Blower's services were held:—"At the weekly meeting of the board of guardians of the Bedford Union, in the county of Bedford, held on Saturday the fifth day of May, 1860,—Ordered, that in conveying to Mr. Blower the acceptance by the board of his resignation as medical officer and public vaccinator of the Bedford and Kempston district of this Union, the Clerk be instructed to express to that gentleman the high sense they entertain of the faithful manner with which he has discharged the duties of medical officer of this Union for nearly twenty-five years, and their sincere regret at the cause which has led to such resignation."

APOTHECARIES' HALL OF IRELAND. The examination for the Prize of Five Guineas, annually awarded by the Council to the best answer on a given subject in Physiological or Pharmaceutical Chemistry, was held at the hall on Monday and Tuesday, the 7th and 8th of May, the subject being "The Metallic Preparations of the Dublin Pharmacopœia," including their physical and chemical characters, the changes which occur in their preparation, the means of ascertaining their purity and freedom from adulteration, and their medical uses and doses. The prize was awarded to Mr. David Hewitt; and certificates for distinguished answering to Mr. John Healy and Mr. William Edmondson Dudley, being equal.

UNIVERSITY OF EDINBURGH. Lord Brougham, the Chancellor of the University of Edinburgh, has appointed Dr. Alexander Wood, President of the Royal College of Physicians, his Lordship's Assessor in the University Court, in room of the late Sir John Melville. (*Scotsman.*)

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION. We (*Scotsman*) understand that this body are likely to meet this year on the 14th of June, for the consideration of the many important matters likely to be brought before them.

BROMPTON HOSPITAL FOR CONSUMPTION. A festival was held on Wednesday, at the Albion Tavern, Aldersgate Street, especially with a view to extinguishing the mortgage debt of £8000, which now presses heavily upon the finances. The chair was taken by Sir John Pakington, G.C.B. The chairman, in proposing the toast of the evening, felt that it had already been amply advocated in pulpits and at public dinners; but who needed to be told of the ravages of consumption? The prevalence of consumption, indeed, was part of the price which we paid for our temperate climate. The management of our hospitals was most judicious and calculated to do the greatest amount of good, but it was impossible that they could open their wards to cases which it was known must be lingering, and this hospital stepped in to supply the want. In 1858 the number of in-patients had reached 667, but in 1859 it was nearly one-third more, namely, 962; the out-patients of 1858 were under 4,000, but in the past year they amounted to 4,657. The annual subscriptions had increased to the amount of £800, but he regretted that the donations had fallen off to the extent of £1,600. There was a great desire on the part of the friends of the hospital to clear off the mortgage debt of £8,000, and to increase the annual subscription, the fund upon which their reliance must be placed. Their income from subscriptions was but £3,000, while the expenditure annually amounted to £8,000, but the supply from the public seemed never to fail. The claims of this charity were reasonable and well founded, and he hoped that they would go on from year to year alleviating pain and misery, and increasing in prosperity; the hospital ought truly to be considered of national importance, as it not only mitigated and cured disease, but also afforded a school for studying a malady which more than any other has set at nought the medical science of the age. At the close of the evening a subscription amounting to £1,722 was announced by the secretary.

ROYAL ORTHOPÆDIC HOSPITAL. The annual dinner of this charity was held on Wednesday evening, at the London Tavern, the Lord Mayor presiding. During the past year, the number of patients relieved by the association was 1,461; and since its establishment it has administered to the necessities of no less than 25,270 afflicted persons. The dinner was well attended. The total receipts of the past year amounted to £2,716; but that sum was insufficient to meet the expenditure, which exceeded it by £132. Up to the present time, the managers of the institution have been unable to liquidate any part of the mortgage debt of £6000, which entails a charge of no less than £300 a year. The Chairman, in proposing the toast of the evening, "Prosperity to the Royal Orthopædic Hospital," dwelt upon the valuable benefits it had conferred upon suffering humanity, and on that ground made an earnest appeal to the liberality of those present to support the institution, reminding them that there were still no fewer than two hundred and twenty-seven persons who were unable to obtain admission to the hospital, in consequence of the scantiness of the funds. The list of subscriptions received after dinner amounted to nearly £2,000, including several donations of £50 and upwards.

ST. MARY'S HOSPITAL, PADDINGTON. The ninth annual dinner in aid of the funds of this institution took place on Wednesday evening at Willis's Rooms. The Hon. George Byng, M.P., presided. It appears from the statements issued that this hospital was opened in 1851, for the relief of the sick poor of all denominations; and that since that time, through the liberality of the public, the 150 beds which it contains have been constantly filled by urgent cases. The total number of in-patients during the past year was 1549; out-patients, 9,686; casualties, 4,941; married women attended at home in confinement, 288—total relieved, 15,564. Further aid is still needed and solicited for the institution; the debts of tradesmen and others being at times very pressing.

UNIVERSITY OF ST. ANDREW'S. Our associate Dr. D. Noble of Manchester has had conferred upon him, by the University of St. Andrew's, the honorary degree of Master of Arts.

ROYAL MEDICAL BENEVOLENT COLLEGE. We have pleasure in stating that since the Festival of this Institution, on the 26th April, when the Treasurer announced the collection of the day and the ladies' contribution to the Building Fund, amounting together to £3,700, the following legacies and donation have been communicated; viz., from the late R. Collison, Esq., Newport Pagnell, £200; from the late R. W. Brown, Esq., Hon. Local Secretary for Bath, £500; and the munificent sum of £105 from Henry Arthur Hoare, Esq., through his medical attendant, Mr. Veasey of Woburn.

ABUSE OF CHARITY. At the weekly meeting of the board of Guardians of the Galway Union, on April 27, a discussion took place on the use of dispensary tickets by persons who had ample means to fee a professional man. Mr. Clarke gave several instances in which this unfair advantage had been taken. He knew of a case in which a lady and her children drove up to a doctor's house, were asked in, and hospitably received. Cake and wine were produced, and the doctor prescribed for his visitor. He saw the lady out to her car, and just as she was going off, putting her hand in her pocket, she exclaimed—"Oh, doctor, I forgot to give you this." The doctor pleasurably expected to handle a pound note, but he was woefully disappointed on receiving a dispensary ticket. He could vouch for this fact, and he could also say that persons in the neighbourhood, earning 30*s.* a week, had availed themselves of these tickets.—*Galway Vindicator*, and *Dublin Medical Press*.

ULSTER MEDICAL PROTECTIVE ASSOCIATION. On May 10, the first annual meeting of this Association was held in the Library of the General Hospital, Belfast; Dr. W. McGee in the chair. The report, which was read by the Secretary, contained the following paragraphs:—"Recently the Committee have received communications from country members complaining of persons in their locality assuming certain medical titles without any right to do so. They now suggest that a circular should be sent to every person so complained of, that he may send to the Committee a statement of his exact qualifications, if he possess any.

"The Committee have recently summoned some unqualified persons, practising in Belfast, to the petty sessions court. The case is still pending, as it has been postponed on a point of law. The Committee, however, have no doubt of obtaining convictions against the persons in question, and they are determined to enforce the law against all unqualified persons practising medicine, so far as they have the power. The Committee having learned by experience that some change relative to the county members of Committee should be made, beg leave to suggest that these gentlemen—three for each county in Ulster—should be styled corresponding members of Committee, and that they should be summoned to attend at quarterly meetings only. This plan would save your Secretary a considerable amount of labour, and the Association some expense. In conclusion, the Committee have to report that the Association is in a flourishing condition. It now numbers one hundred and fifty-six members, and several gentlemen have signified their intention of joining our ranks." Surgeon Browne (the Secretary) stated that during the time the Association had been in existence, a great deal more had been done than was stated in the report. They had either got parties to register, or put parties who had been placed in a false position into a proper position. They had also been the means of amalgamating the North with the South of Ireland. After referring to the valuable assistance which the Association had received from Dr. Mackesy, President of the Irish Medical Association, Surgeon Browne concluded by moving the adoption of the report.

HEALTH OF LONDON—MAY 12TH, 1860.

[*From the Registrar-General's Report.*]

	Births.	Deaths.
During week ..... { Boys.. 786 / Girls.. 819 }	1605	1111
Average of corresponding weeks 1849-58	1627	1174

Among the causes of death were—bronchitis, 88; pneumonia, 62; phthisis, 141; small-pox, 16; scarlatina, 25; measles, 53; diphtheria, 7; hooping-cough, 42. The deaths from pulmonary diseases (exclusive of phthisis) were 173, being 3·7 below the corrected average.

Barometer:

Highest (Sun.) 29·964; lowest (Tu.) 29·949; mean 29·639.

Thermometer:

In sun—highest (Sun.) 111·0 degrees; lowest (Th.) 81·0 degrees.
In shade—highest (Sat.) 66·8 degrees; lowest (Mon.) 32·5 degrees.
Mean—52·2 degrees; difference from mean of 43 yrs. + 0·7 degree.
Range—during week, 34·3 degrees; mean daily, 20·2 degrees.

Mean humidity of air (*saturation* = 100), 83.

Mean direction of wind, S.W.—Rain in inches, 0·64.

TO CORRESPONDENTS.

Communications have been received from:—DR. LIONEL BEALE; MR. J. A. LOCKING; DR. WM. NEWMAN; DR. HYDE SALTER; MR. W. MCCHEANE; DR. W. F. WADE; MR. G. E. STANGER; MR. F. H. VERTUE; MR. SANDS COX; DR. DAY; MR. S. H. BEHRENS; DR. T. HEAD; DR P. H. WILLIAMS; DR. D. NOBLE; MR. JOSHUA PARSONS; MR. JNO. DIX; MR. WEBBER; MR. PHILIP H. HARPER; MR. RICHARD HUGHES; MR. I. B. BROWN; DR. T. SKINNER; DR. PAGET; MR. J. Z. LAURENCE; MEDICUS; MR. BLOWER; MR. T. M. STONE; DR. THORBURN; DR. J. W. OGLE; and DR. LITTLETON.